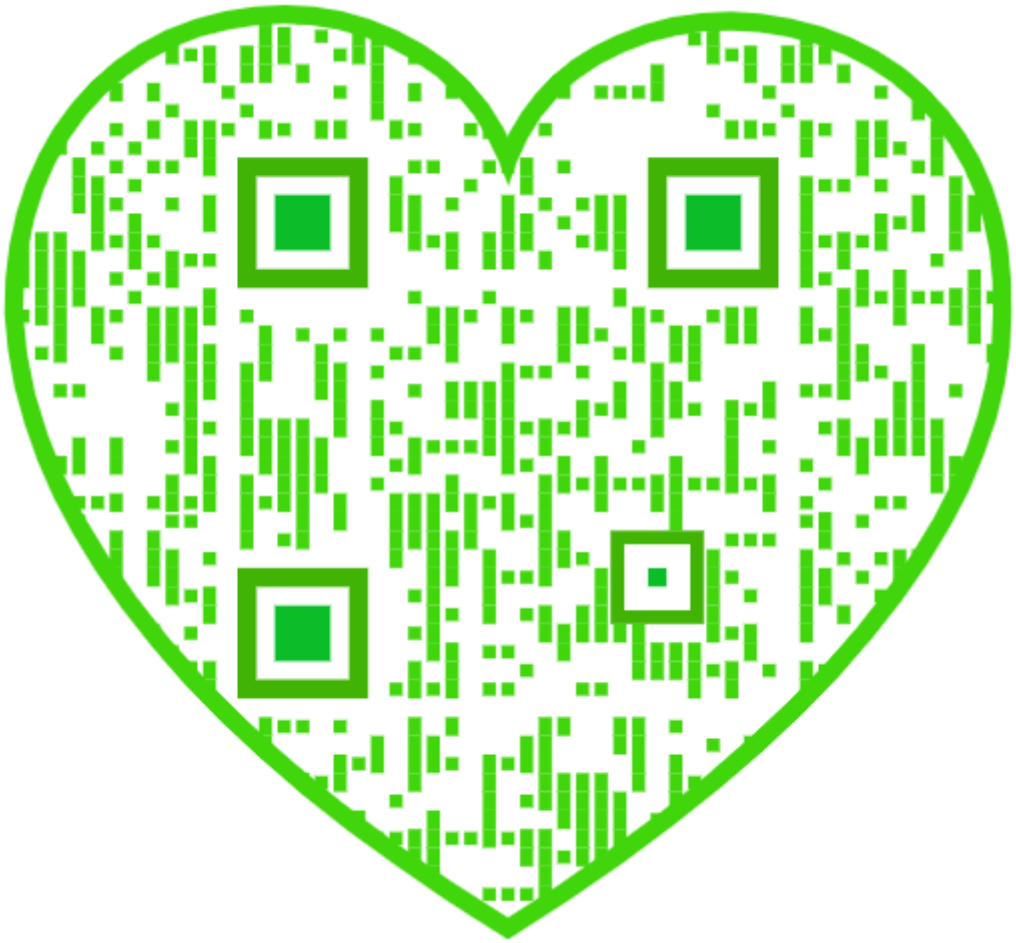
PREFACE.

THE formation of a code of rules for any particular species of culture, is an undertaking arduous in itself, and at the same time attended with great responsibility. The author in the present case is sensible of the peculiar delicacy of the task, and whilst he is desirous of devoting his unwearied exertions, together with any degree of ability he may possess, towards perfecting the object in view, he must at the same time crave from his fellow-citizens, the extension of their kind indulgence towards its imperfections, premising that any errors into which he may have been inadvertently led, will cheerfully be corrected when apprised of their existence. In the present case it is far from the pretensions of the author to claim or aspire to entire originality. A species of culture recorded from the time of Noah, and which has been extending in Europe, from the period of the birth of our Saviour to the present day, and withal one of the most interesting character, could not fail to have received the aid of the brightest talents of every age towards its advancement and development.

It is with the various species of culture long known to the world, as it is with political knowledge; our Government and National policy derive their perfection from a consideration of the experiments made by the nations which have preceded us. Our country in like manner borrows from every other nation the lessons of experience they present, and profits by the intelligence of her citizens, in seeking to enforce and improve upon what others have acquired.

Of similar character must be the introduction of the vine culture, and the establishment of the wine press. We must collect from the four corners of the earth all that combined intelligence and experience can offer, and then mark out the course most profitable for us to adopt,—adding thereto such improvements as our own knowledge would indicate. In accordance with this view of the subject, it is the anxious purpose of the author that this work should present the *concentrated intelligence* of every clime derived from all the experience of the past.

The vineyards of Europe are composed solely of the varieties of a single species of the vine, and that a foreign one transplanted to her soil. In our country numerous species and varieties are every where met with, springing up spontaneously in our woods and prairies, nature's own gifts unaided by culture or by toil. Hence we possess not only all the advantages that France and the other wine countries enjoy, from our having already introduced the choicest varieties which those climes can boast, but this advantage is enhanced by the numerous varieties which our own country presents to us. And in a comparison of our natural situation with Persia and other countries of the east, as regards the number of



species, we enjoy, by parity of reasoning, advantages tenfold those which were originally possessed by them, as they commenced the vine culture with a single species alone.

In Europe the culture of the vine has been profitably extended to the 51° of N. lat. and in some cases to the 52°. Allowing the present difference in climate or temperature to be 10° between similar latitudes of that continent and our own, it thence follows that vines of the foreign varieties may be advantageously cultivated to the 42° in our own country, and perhaps the intensity of our summer heat may extend the limit somewhat further to the north. But taking this as the extreme limit where profitable crops can be obtained for the purpose of making wine, still their culture can be extended much farther for the purpose of table fruit, and as an article of luxury. But an obvious course immediately presents itself for extending vineyards profitably as far north as they are in Europe. This is the use of our native varieties of the hardier description, some of which being found growing naturally as far north as Lower Canada, do not fail to succeed even in that country. Thus it appears that although there exists a present difference of about 10° between the temperature of our country and that of Europe, the hand of nature has implanted our soil with vegetable productions of a hardier character, capable of supporting the severities of climate in a degree fully proportionate to the variation referred to. And I may also here mention the peculiar property most of our native vines, and particularly the northern species, possess, of flowering at a much earlier period than foreign vines, which is of itself equivalent to an increase in the length of the season.

But even the difference of climates referred to, together with our occasional late spring frosts and variableness of the atmosphere, will, it is anticipated, be greatly diminished, and gradually subside as a more general culture of the soil takes place; when the forests are removed so as to lay bare the earth to the regular influence of solar heat, and the collections of stagnant water become dried up, an advance towards which point has been already realized in some of the best cultivated parts of our country.

The ancient descriptions of the German territory, and of France to the north of the Cevennes, confirm our belief that the climates of those countries were formerly of a character similar to our own, and that they have varied from the circumstances attendant on general cultivation. Diodorus Siculus tells us that the large rivers of the Roman provinces, the Rhine and the Danube, were frequently frozen for their whole depth, and thereby rendered capable of supporting enormous burthens, in so much that the Barbarian hordes preferred that season for their invasions.

By the preceding remarks it will be perceived, that the culture of the vine may be made profitable even to the remotest northern and eastern sections of the union, and my own opinion is, that by the course recommended, it can be extended farther to the north than it has been in Europe.

The pursuit itself is one both ennobling and inspiring, and is calculated to elicit the best propensities of the human heart, and as will be shown, it is one which kings and potentates have not failed to honour with their personal attention. On the other hand, it is indispensably necessary for us to adopt it, if we expect ever to taste wines equal to the more luscious ones of France, as those

claiming that character are not susceptible of transportation by sea without being adulterated.

It will also be the purpose of the present work to show that the Vine culture is in no wise difficult, that any failures which have taken place were far more the result of erroneous management than of any incapacity of the soil, and that the numerous difficulties which have been thrilled in our ears for the thousandth time, exist only in the brains of those who have propagated them. In fact, any person of the least information, after being taught the management of a single vine, may without difficulty proceed in a similar course with a whole vineyard. It is in fact a species of culture where one head will serve to direct a great number, and in which after once instructed, no after difficulties need arise, and this consideration is one of particular moment, when we take into view its peculiar applicability to the situation of the labouring population in the southern states.

Another prominent advantage which this culture presents, is that it turns to account soils and situations unsuitable for other objects, for Young relates in his travels through France that he found every variety of soil, from a heavy clay to a light blowing sand, and all exposures whatever, and every situation from a perfect level to the steepest hills, to afford profitable crops of grapes; for where their quality is not suitable for the finer wines, they are made use of for distillation into brandies. Indeed, it is a fact so noted, that the very finest wines are produced on the declivities and the poorest soils, that a ditty oft sung by connoisseurs contains the following stanza:

"Toujours le bon vin croit sur les montagnes,
Dans les rochers, et sur les côteaux;
Celui qui croit dans les rases campagnes,
Ne vaut rien, à cause des eaux."

In France alone the vine culture gives employment to two millions of labourers, without enumerating many subordinate mechanical branches that are benefitted by it; and it is attended with immense national advantages, which it forms a part of the purpose of the present work to fully discuss and explain.

Agriculture is the great basis and the source of national prosperity, as generally conceded. This fountain of our wealth is however sometimes oppressed to such a degree as to make those engaged in it cry aloud for encouragement, and assert that their claims are frequently neglected or inefficiently supported. These circumstances appear plainly to present an appeal to our consideration, and to call upon our national government to pursue the course long since adopted by France; that of favouring and encouraging the introduction and culture of every foreign product which our climate is capable of maturing and perfecting, and calculated to develope our internal riches, by bringing into useful action those vast domestic resources which have too long lain dormant in the bosom of our soil; a proper attention to which would place us in an attitude of independence of foreign supply.

A great advantage resulting from such course is this; that where a particular branch of agriculture languishes or is depressed, by the produce becoming diminished in price from a superabundance of supply, a new channel for national industry will not only afford profit to those actually engaged in it, but by withdrawing a portion of the population from other objects of pursuit, tends to secure

an appropriate division of labour, and thereby to cause other products to realize a fair valuation. It is not by turning its whole attention to one point, that a nation advances its resources, but by seeking to develope the natural riches of every description which her soil and climate are susceptible of furnishing; thence realizing, first, the necessary supplies for her own population, by which she secures to herself a sure and regular market for her products to a certain extent, and secondly, a surplus sufficient for foreign export.

Another great benefit which will result from an assiduous improvement of our national resources, is that it must permanently secure to us the balance of trade; the prompt tendency of which will be to produce a return of all our public stocks now held in Europe, the interest on which is annually draining from us an enormous taxation on our labour.

It is a subject of gratulation that the public attention seems so fully drawn to the culture of the grape. It was not until after immense difficulties that the vine was brought to its present state of successful culture in France; and it should be no cause for discouragement, if some experiments are made in this country without the anticipated success. In fact, so many causes exist by which an error in judgment, or the want of the necessary information, may produce a failure, that it would be a miracle if all were to succeed. Already, for years, has the vine been most successfully cultivated on the Rhine; and in latitude 50 degrees, the most choice Rhenish wines are made. Recent accounts tell us of vineyards having been established in the more northern parts of Germany, and in high latitudes in Russia; and the Swiss have been, for a course of years, most plentifully supplied with wine from their own soil. Shall then America alone be debarred from this, one of the bountiful gifts of nature? Shall a country, possessing every variety of climate which is combined in all the wine countries of Europe, and extending through all the degrees of latitude which are there deemed the most genial to its growth and produce, be said to be totally inappropriate to its success? Shall it be said that a plant, which culture has accommodated to almost every other clime to which it has been introduced, can find no spot whereon to flourish, in a country extending from the 25th to the 47th degree of latitude; and that we can boast no such congenial soil in an empire, whose bounds are the St. Lawrence and the Gulf of Mexico, and whose settlements already extend from the shores of the Atlantic to the sources of the Missouri? It is high time such delusions of blinded theorists should give way to the lights of reason and of judgment, and that the culture of the vine, to *every variety of which* we have a soil and climate suitable to offer, should assume that importance to which it has already attained in countries possessing comparatively few advantages. Let, then, the beams of intelligence, which are imparting so much benefit to mankind by their wide diffusion, disperse these clouds of ignorance and error from the enlightened horticulturists of the American republic.

HISTORY OF THE VINE, &c.

GRAPE VINE—VITIS.

CLASS, PENTANDRIA—ORDER, MONOGYNIA.

NATURAL ORDER—*Vites.*

THE Vine derives its generic name from the Latin word, *vincire*, to bind, than which no other can be more appropriate.

The appellation, "*The Vine*," as used by different authors, invariably refers to the varieties of *one* species, the *Vitis vinifera* of botanists.

The Grape Vine is universally known to be a trailing, deciduous shrub, with a twisted irregular stem, flexible branches, decumbent, or supporting themselves when near other trees by means of its tendrils; the bark is of a light or dark brown colour, separating in strips from the stalk and renewing itself annually; the leaves generally large, but vary in form and appearance, being entire, serrated, more or less lobed, downy or smooth, of a lighter or darker shade of green, or with a reddish tinge during summer, but varying at maturity in autumn; those varieties of which the predominating colour is red, almost invariably changing to, or are tinged with some shade of that colour, and those which produce white, green, or yellow grapes, changing to a yellow colour without being tinged with purple, red, or scarlet. The breadth of the leaves varies from five to ten inches, and the length of the petiole from four to eight

inches: the flowers are produced on the shoots of the same season, which shoots generally proceed from those of the year preceding; they are of a greenish colour and fragrant odour, are produced in the form of a raceme and expand in June. The berries are of a variety of forms, of various colours, and differing also in flavour, which is poignant, elevated, and grateful.

The flowers have each a five-toothed calyx, and five almost colourless petals, which are caducous; five stamens, and a superior ovarium surmounted by a stile and obtuse stigma.

Each berry should contain naturally five heart-shaped seeds; but many varieties, originating from culture, have but three, others but two, and sometimes one, and there are others which have none.

The tendrils are opposite to the leaves, and may be considered as abortive clusters, and can be made to produce fruit by destroying the real clusters when they first show themselves, breaking off at the same time the extremity of the shoot on which they grow, so as to cause the sap to flow into them.

The eye, or bud, is surrounded by three or four scaly coverings, under which, especially on the upper part, there is an adhesive substance of a white or red colour, which protects it from the effect of rains and winter frosts. The fruit in its wild state is black, very small, with large seeds, and without flavour.

CHAPTER I.

Early history of the vine—its origin and native country—Early use of wine among the Romans.

Various historians have traced the culture of the vine to the earliest periods, and the scriptures bear ample testimony of the high estimation in which it has been held from the first ages of the world.

In the ninth chapter of Genesis, we read that one of the first acts of Noah, after being saved from the deluge, was to plant a

vineyard. "*And Noah began to be an husbandman and he planted a vineyard;*" thus plainly indicating that the planting a vineyard was even at that early day, deemed one of the primary and most important acts of him who tilled the earth. It is equally certain from this circumstance, that vineyards must have existed and been objects of particular attention before the deluge, otherwise Noah could not have possessed the knowledge, and made their formation one of the first acts after his miraculous preservation, and restoration to the pursuits of husbandry, it being one of the principal duties of Noah to communicate to mankind the knowledge possessed before the flood.

Among the blessings held out to the Israelites as productions of the promised land, the vine is particularly mentioned, "*a land of wheat and barley and vines;*" and the spies which were sent into the land of Canaan to ascertain its riches, on their return bore a cluster of grapes on a girdle between them. The vine is also frequently mentioned by the ancient patriarchs and fathers, as a type or emblem by which to represent the riches of a country, or the flourishing condition of a nation, tribe, or family, "*Thou hast brought a vine out of Egypt,*" &c. Psalm lxxx.—"*Thy wife shall be as the fruitful vine,*" &c. Solomon also speaks of its power to gladden the heart, and to banish sorrow; and "generous wine" has been for ages deemed a fit oblation for fallen man to offer to the Deity, and to mingle in the sacred offerings of his homage.

Even among the heathen nations of antiquity, the vine was held in the highest esteem and veneration. The invention of wine was ascribed by the ancient Egyptians to Osiris, by the Latins to Saturn, and the Greeks elevated Bacchus to the rank of a deity, for having brought the vine from Arabia Felix; and after first cultivating it himself, he transmitted it to every country which submitted to his conquests, and taught its use and value to man. He is represented by Pliny to have been the first who ever wore a crown, and as the god of vintage and of wine, his crown is formed of the vine; and its twining branches bedecked with clusters of fruit, is still selected as an emblem to indicate hilarity and gladness. Even the

crown of Juno was also made of the vine. Plato, one of the wisest of men, and who so particularly restrains the use of wine within reasonable bounds, and so severely censures its abuse by excess, remarks, "that nothing more excellent or valuable than wine was ever granted by God to man." Among the ancient Romans, wine was principally used for sacred purposes in the worship of their gods, to which object it had been appropriated by the inhabitants of the East, previous to the foundation of that empire.

To show still further that the ancients were well aware of its abuse as well as of its worth, although we find Bacchus generally represented with a countenance full of jollity, yet he is often depicted as an old man, with his head encircled by the vine, to teach us that wine taken to excess will induce enervation, destroy our health and strength, and render us weak, loquacious, and childish, like old men.

In the earlier ages wine was used without dilution; and the Athenians mention Amphitryon as the first who mingled it with water; and it is said that to this circumstance we owe the origin of the fable of Bacchus having been struck by a thunderbolt, and cast thus inflamed into the bath of the Nymphs to be extinguished.

Origin and native country of the vine, &c.

Not only, as Chaptal truly remarks, are we indebted to Asia for civilization and the arts, but also for the most of the cultivated grasses, fruits and vegetables, and even for the vine. By some authors it has been supposed to be a native of Syria, but none of these appear to have possessed any proofs on the subject. The accounts of Andre Michaux, who found it in the woods of Manzanderan, and of Olivier, member of the French Institute, who saw it in many parts of the mountains of Curdistan, as well as the circumstance that the most part of our acclimated fruits, and our domestic animals, come from upper Asia, banish all doubt of the fact that Persia is its native country.

Pallas also found the vine growing naturally upon the Caspian and upon the Black sea, and it is also very common in the Crimea.

The introduction of the vine to those countries where it is now cultivated to the greatest extent, was gradually from more eastern climes, whence it was first brought to the southern parts of Europe. In the time of Homer it grew spontaneously in the island of Sicily, and probably, upon adjacent parts of the continent; but it was not improved by skill, nor does it even appear that the rude inhabitants extracted a liquor from it. It was not until a thousand years after this period that Italy could boast, that of the fourscore most celebrated wines, more than two-thirds were the produce of her own soil.

A highly interesting and curious account is given by Dr. Sickler, of its gradual migration to Egypt, Sicily, and Greece. The Phœnicians, who had widely extended their commerce, and who frequently explored the coasts of the Mediterranean, introduced the culture of the vine into the isles of the Archipelago, and afterwards into the island of Sicily and into Greece; and lastly, to Italy, Provence, and the territory of Marseilles.

Early use of wines among the Romans.

During the first period of the Roman empire the culture of the vine attracted but little attention, for Romulus forbade the use of wines in the libations then customary in the sacrifices of the Asiatics, and restricted them to milk as a libation on the funeral piles of the dead. Numa maintained this custom, and forbid wine at funerals, and he only permitted them to make use of such wine in their libations to the gods as had been made from vines that were well pruned, as Pliny asserts, in order to render the pruning of the vine an object of necessary care to those who cultivated it.

Wines were so rare and expensive in Rome during the early life of Lucullus, that but a single draught was allowed at a repast, however sumptuous the feast and entertainment might be in other respects: and Varro tells us that Lucullus never

saw at his father's table Greek wines served up but once at each meal, but, that on his return from Asia, he bestowed on the people as a largess, more than a hundred thousand gallons of such wine; and that Hortensius at his death left to his heir above ten thousand barrels filled with the esteemed wines of Greece.

Pliny mentions having drank wines that had been made during the consulship of Opimius, which was about two hundred years before. He also concludes that the vine was very rare in Italy in the reign of Numa, and adds, that wines did not come into much repute until six hundred years after the foundation of Rome.

Varro states a fact which shows the high value then set on wines, that Mezentius, king of Tuscany, aided the Rutilans of Ardea in their wars against the Latins, for no other hire but the wine and the vines which were in the territories of the Latins. It was to Ruma that Italy was first indebted for the abolishment of the interdiction promulgated by Romulus, and Pliny remarks, that politicians made use of the circumstance of this privilege being granted for its free use in religious sacrifices, as a means to promote and encourage its extensive culture, and the result seems to have fully responded to these exertions, for vineyards soon after became so numerous, and their produce so abundant, that wine not only came into general use, but the use of it was often carried to excess, and even the Roman fair are said to have partaken too freely of the enjoyment. This excess caused the enactment of the law against its use by women in any case whatever, under penalty of death, and by men until they had attained the age of thirty years. Fabius Pictor tells us of a Roman lady who was starved by her relations because she had opened a cupboard which contained the keys of the wine cellar; and Macennius killed his wife with a cudgel on account of having caught her drinking wine out of a tun, and being tried for it, was acquitted of murder. Cato mentions, that the custom among relations of kissing women when they met, was to ascertain by their breath if they had been drinking wine. But this cus-

tom is said also to have had its inconveniences from the eagerness which some evinced in offering and others in receiving the proof of that abstinence.

But the law that has been referred to could not, from its too great severity, be effective or of long continuance, in regard to the use of an article which had become so common and abundant; and it was consequently soon altered so as to fix the age of thirty years as the period after which it might be drank by all, and finally they were compelled to alter it again, and allow an entire freedom in its use.

The same abuse of wine caused a similar law in the Marseilloise republic; but there, as among the Romans, its extreme severity was an obstacle to its application, and it was in like manner annulled.

CHAPTER II.

Ancient Vineyards.

It would be a task both pleasing and interesting, to form a chronological table of the formation of the principal French, Spanish, German, and other vineyards; but the various histories of national agriculture furnish us with no documents sufficiently precise on that subject, and whatever may be said of it, we have not a complete one from Pliny of those of early date: the only course, therefore, by which we may attain to correct conclusions, is to examine with care the books and manuscripts which exist on the subject, and to draw from each its quota of knowledge, and to condense them as far as possible under one head. It may however be deemed worthy of remark, that at the second epoch of the planting of vineyards in France, present circumstances fully prove, that the propagation of the vine extended itself in the neighbourhood of Marseilles, in the direction from the meridian sun. The culture afterwards advanced in two directions, almost diametrically opposed, to the north and south-west; the first penetrated Dauphiny, by

the numerous hills of the Rhone, the shores of the Saône, and all that famous coast formed of small mountains, which traverse Burgundy, from the meridian to the north, thence extending by the country of the Sequanois, (Franche Comté, or Jura,) upon the left bank of the Rhine, on the hills of the Marne, of the Moselle, and of those which border on the Sielle. The second branch directed itself towards Languedoc, Gascony, and Guienne. It is probable that from these two principal branches, ramifications may have extended to the interior, according to the relative situations of the different provinces, and to the connections which existed between the inhabitants. There is no doubt, also, that the inhabitants of the contiguous districts, procured their vines, and a knowledge of their culture from the vignerons of Guienne, and that the inhabitants of Auvergne, Bourbonnois, Nivernois, and Berri, received theirs from the people of Lyons, and transmitted them in like manner to those of Tours, Anjou, and their environs. The inhabitants of Gatinois, Orleans, and the Isle of France, received theirs from the vineyards which formed the ancient boundaries of Burgundy and Champagne. The vine was planted and its culture communicated with an inconceivable rapidity, when contrasted with the difficulty which exists at the present day, in causing the best precepts and the best modes of culture to be adopted. It is true, that in reverting to former periods, we perceive that the proprietors of extensive domains did not disdain to devote themselves personally to rural pursuits, and that sovereigns themselves were not strangers to agricultural employments. The first dukes of Burgundy established vineyards on their own account; and we learn from their ancient ordinances, how much they prided themselves on the possession of the finest wine country in christendom, and the duke of Burgundy was often designated by the title of "prince of good wines." Neither were the kings of France unmindful of the advantage of extending the culture of the vine in their dominions. The edicts of Charlemagne furnish proof that vineyards were attached to each of his palaces, with a press and every instrument necessary in the making of wine; the sovereign himself

engaging in the principal management with his vignerons. The palace of the Louvre, as well as the other royal residences, has had a collection of vines attached to it since early in the twelfth century, and in the year 1160, Louis the younger assigned annually from its produce six hogsheads of wine to the curé of St. Nicholas.

Philip Augustus, in the year 1200, possessed numerous vineyards at Bourges, Soissons, Orleans, and various other districts of country, and the royal vineyard of Coucy, formed of vines obtained direct from Greece, is often mentioned in history. In fact, so numerous did the variety of wines become about this period, that among the fables of the thirteenth century, there is one composed in the reign of this sovereign, entitled the "Battle of the Wines," in which are enumerated the very great number of French wines then held in high repute, and those who feel a great interest on this point, would doubtless be gratified by referring to it.

Since the year 1200, a century has not passed away without augmenting the number of districts and of vineyards worthy of note, and adding to the list of wines which merit our approbation. Others have in like manner declined and lost the esteem they once possessed. The vineyard of Mantes, once counted among the most distinguished, has long since lost its reputation from inattention to maintaining it.

Deschamps announces that even in his time, the wines of Burgundy and of Champagne were rivals in renown. The plantations of the vine in the environs of Paris, existed at a very remote period, as the emperor Julien lauded the wines they yielded, but the reputation they possessed for several centuries no longer exists. The primary cause of this change is attributed to the vast increase of the population of Paris for the last century. The great number of artisans and workmen, who centered in that city, in consequence of the wants of the opulent inhabitants, caused the hotels, taverns, and pleasure gardens, to be greatly increased. These places of resort, being constantly filled by consumers, in no wise particular in their taste, they created a permanent market, and constant

demand at all periods. The proprietors of vineyards, being thus assured of an advantageous sale of whatever quantity they could make, without the expense of sending it to a distant market, decided on increasing the quantity even at the sacrifice of the quality. The ease and cheapness with which they could enrich the soil of their vineyards, by procuring manure so cheaply in Paris, powerfully seconded their views. It was only necessary further to neglect the culture of those vines whose produce was small, and to increase in their stead, those kinds, however indifferent in quality, that yielded great crops, to annihilate the celebrity these vineyards had before acquired and justly merited.

The vineyards of Orleans have also failed of possessing at all times the same degree of favour. The decline into which they have fallen, may also be traced to the immense consumption, not as wine, but for the purpose of conversion into brandy and vinegar. Under these forms, the produce of the Orleans vineyards is sought after by various nations to such a degree, that doubtless many proprietors deemed it of little interest to strive to maintain the ancient character of the wines. In 1666, the king of France presented to the king of England, two hundred hogsheads of wine, consisting of Champagne, Burgundy, and Hermitage, they, without doubt, being deemed the best of that day.

In the Memoirs of Tully, we find the history of the wine of Arbois, and some amusing anecdotes that rendered them celebrated.

I will only further notice one of the largest and most celebrated wine districts of France, namely that of Bordeaux. The major part of the wines made in this territory, having for centuries continued to be a most important object of export, rather than of home consumption; it is not very surprising that our writers, as these wines were in general little known, should have omitted to give us more than a partial account of their merits. Ausone, who lived in the fourth century, praised their excellence in many of his writings. Mathieu Paris, also comments upon their value in 1251; and it is proved by the

registry of the custom house of Bordeaux, that in the year 1350, no less than one hundred and forty one vessels left that port, laden with 13,429 pipes of wine; the duties of which were, 5104 livres of their currency. Froissard also states, that in 1372, there arrived more than two hundred sail of vessels to load with wine.

I shall confine myself here to the foregoing remarks; but the vineyards of this district occupy so distinguished and important a rank among the finest in France, and are objects of so much interest on account of their immense export, (a point which Americans must particularly aim at,) that I shall hereafter enter more minutely into the details, and describe the principal crus, or favourite vineyards, which have acquired for it so much celebrity.

CHAPTER III.

Introduction of the vine into France.

The vine appears to have been introduced into France at a remote period. It was very early transmitted to the Narbonnese province of Gaul, but the cold was so intense to the north of the Cevennes, that in the time of Strabo it was deemed impossible to mature the grapes in those parts of Gaul. This was doubtless caused by two circumstances: first, the climate had not then become ameliorated to the degree it afterwards acquired by cultivation; and secondly, the vine being a native of a much more southern region, needed that acclimation by culture which it in time attained. These difficulties were, however, gradually surmounted, or vanished from the effect of concurrent circumstances. It was also brought by the Phœnicians to the territory of Marseilles, at the time they founded the well known city of that name, where it was multiplied to such a degree, that many vineyards celebrated for their produce existed in the republic of Marseilles, and in the province

of Narbonne, when Julius Cæsar conquered the Gauls; and there is good reason to believe that the first vineyards of Burgundy existed in the age of the Antonines, but the other parts of Gaul and Helvetia (Switzerland) were totally without them at that time. Indeed, a circumstance is related in history, that about this period a Swiss blacksmith having crossed the Alps into Italy, on his return brought back some grapes and some figs, which caused the whole nation to determine on emigrating to so desirable a country, producing such delicious fruits, and that they departed, after setting fire to their towns and villages, but were repulsed in their attempt to pass the Alps by Julius Cæsar; and also a second time in attempting to cross the river Saone, and go round the Alps by Nice.

Strabo remarks, that the vines of Languedoc and Provence produced the same fruit as those of Italy, which was doubtless the case, they having all one common origin. Whether the success was greater or less which attended the vineyards at antecedent periods, it is certain that about the year eighty-five the culture of the vine had already covered many of the hill sides of the southern and middle departments of France, and was gradually extending itself to the rest of Gaul, when Domitian, finding there was a great scarcity of grain in the Roman dominions, attributed it to the vast increase of vineyards in Italy and the provinces, which he considered as forming a cause that rendered agriculture too much neglected, and deeming also their existence to so great an extent as an incitement to sedition from the encouragement they gave to intemperance, he issued an edict prohibiting the planting of any new vineyards in Italy, and ordering the whole (some historians say one half) of those in the provinces to be destroyed. The date of this edict is said by some to be the year 85, and by others 92 of the Christian era. This privation lasted nearly two centuries, during which no vineyards could be planted without permission of the emperor, and the provincials did not receive permission to replant them until about the year 280, when Probus, after numerous victories, which gave peace to his empire, evinced a great desire to encourage

agricultural pursuits in all the provinces, and rescinded the edict of Domitian. The renewal of this privilege appears to have been received with great satisfaction; for tradition still retained in the memory of the Gauls the great advantages that species of culture had afforded them, and the vines of Sicily, Italy, Greece, the Archipelago and Africa, were again transplanted to the provinces of Gaul, and became the origin of the innumerable varieties which now cover with vineyards the territories of France. The formation of these new plantations of the vine are said to have presented a delightful and inspiring spectacle. Crowds of persons of both sexes and of all ages were seen spontaneously and enthusiastically devoting themselves to an occupation in which all could take part—to that gratifying restoration of liberty, the replanting of vineyards. It appears, also, to have been about this period (though some authors say it was in 270) that the vine was planted in the northern parts of Gaul, and about the rivers Rhine, Moselle, and Maine, and in Hungary. The vineyards of France had very early attained to celebrity, wines having been even exported from them to Italy during the reign of Vespasian.

In the beginning of the fourth century, Eumenius mentions the vines of the territory of Autun, which had become decayed from age, and the first plantation of which was entirely unknown; and M. D'Anville supposes the Pagus Arebrignus to be the district of Beaune, celebrated even at the present day for some of the finest vineyards of Burgundy. St. Martin planted vines in Touraine before the end of the fourth century; and St. Remi, who lived about the end of the fifth, left in his will to different churches the vineyards which he possessed in the territories of Rheims and Laon, with the slaves which he employed to cultivate them. The export of wines, however, from Bordeaux to England, did not commence until about the year 1172.

CHAPTER IV.

Introduction of the vine into Britain.

There appears to be much difference among authors as to the precise period when the vine was first introduced into Britain. Some conclude it must have been as early as the tenth year of the Christian era, as at that period a great part of the island was in possession of the Romans, who had introduced the luxuries of Italy wherever they settled, and that as the culture of vineyards formed at that period one of the most important in their own country, they could scarcely have failed to introduce this also; and from the circumstance that Augustus was then emperor, in whose reign it was common to send the sons of the British nobles to Rome to be educated, it is deemed improbable that during such frequent intercourse the culture of the vine could be neglected. On the other hand, Pliny, who writes so fully on the vine, does not mention its existing in Britain; and it appears from Tacitus that it did not exist there in the time of Julius Agricola. We also read that in the year 85, Domitian, as has been already stated, prohibited by an edict the planting of any new vineyards in Italy, and ordered those in the provinces to be destroyed, which edict was not rescinded until the reign of Probus, about the year 280, at which period the Britons are particularly mentioned by Vopiscus among the provinces which partook of the privilege. Whatever difference exists, therefore, about anterior dates, there can exist no doubt as regards the era last named; and that, at all events, Britain was indebted to the Romans for its introduction, is a point generally conceded. Some have advocated the possibility of its earlier introduction by the Phœnicians, who are said to have planted the vine in the Mediterranean isles, as well as in several other parts of Europe and Africa; and, as accounts exist of their having traded to Britain for tin, it has been conjectured that they may also have planted the vine on the shores of Britain. As this sup-

position, however, has nothing to confirm it, it is only interesting on account of its affording additional circumstances to prove that the vine was originally brought from Asia.

Vineyards appear to be first mentioned in Domesday book, which states that one at Rageneia in Essex, which was comprised of a park and six arpennies of land, yielded in a successful season "twenty modii of wine;" and also names another at Ware, covering a similar space, which had but recently been planted. Bede, who finished his history in 731, mentions the existence of vineyards in several parts of Britain; and the first vines were no doubt planted in the southern parts of the island nearest to Gaul, whence they were doubtless received, as vineyards had there already acquired celebrity; and the neighbourhood of Winchester was formerly so noted for vines, that Twyne supposes the city to have taken its name from that circumstance.

Ample proof can be deduced of the existence in former periods of vineyards at Canterbury, Rochester, Halling, and in Northamptonshire, Cambridgeshire, Gloucestershire, Middlesex, and various other parts of Britain; the isle of Ely was denominated by the Normans the "isle of vines," and the bishop of Ely, shortly after the conquest, received three or four tuns of wine annually as tithes from his diocese. Some vineyards are also mentioned as having existed in the eighteenth century, one of which was in Sussex, belonging to the Duke of Norfolk, from the produce of which there were in his cellar in 1763, above sixty pipes of excellent Burgundy.

In regard to the decline of British vineyards, her historians have left us much in the dark; but the authors of that country endeavour to account for it by stating, that as their intercourse increased with the continent, it was found more advantageous to import wine than to depend upon the product of their own soil, which must have been uncertain from the variableness of their climate; in addition to which, the very low price at which it was obtainable from abroad, must have caused its final neglect in England. Part of France being also in the time

of the Henries under the control of Britain, that circumstance would doubtless accelerate the importation of her wines, and the general advancement of agriculture in Britain proving it to be the more lucrative, must likewise have contributed to the abandonment of vineyards.

The suppression of the monasteries must also have tended much to the destruction of the vineyards, for it was the religious fraternities of the dark ages which (as Harte observes) spread out from Italy in all directions, that carried with them the knowledge of agriculture and gardening, and there appears consequently little doubt that orchards and vineyards were common appendages to abbeys and monasteries from their first establishment, at least in the southern parts of the island, as the monks who emigrated from Italy had been so much accustomed to the habit of drinking wine at their meals, that it had become in a manner necessary to them, and these gardens and vineyards no doubt existed until the time of the reformation.

Grapes first came in demand as a table-fruit at the beginning of the sixteenth century. They appear, however, to have become rare in England about the year 1560, during the reign of Elizabeth, and from that time their culture seems to have declined for a long course of years. Since the commencement of the present century, great interest has again been awakened to the culture of the vine, both among their scientific horticulturists and among the numerous amateurs of this fruit, and grapes for the table are now produced in great quantities and in the highest state of perfection in that country by artificial culture in houses suitable for forcing their growth in a greater or less degree, also against walls, and in some cases in open exposure; and it is now a well-known fact, that grapes of the finest quality for the table, the product of their own soil, are a regular article of sale in the London markets for nine months in the year. In regard, however, to the successful re-establishment of vineyards, the question is yet undecided; the great humidity of the atmosphere and deficiency of sun, presenting impediments difficult to be surmounted; still it is very

possible that by a judicious selection of such varieties as succeed best in Switzerland, Hungary, America, &c. the southern shores of Britain may yet become the seat of prosperous vineyards.

CHAPTER V.

Age of the vine—its spread—size—size of the bunches and berries.

In regard to the age to which the vine will survive, we have various accounts in the numerous authors who have written on the subject. Pliny names a vine which had existed six hundred years. Miller tells us that the vineyards in some parts of Italy will hold good three hundred years, and that vines of one hundred years of age are yet accounted young. The learned Professor Bosc, late administrator of the celebrated garden of the Luxembourg, at Paris, established by the French government, states that there are vines in Burgundy of upwards of four hundred years of age. Some authors say that in point of age the vine equals or even surpasses the oak.

In our own country we have yet been unable to ascertain the age to which it will attain; and the period that has elapsed since its discovery would, according to some authors, be insufficient for that purpose, had the experiment even been commenced at the landing of Columbus. But I have never myself seen a vine, among the thousands that fill our forests, that had died from the effects of age.

Spread of the vine.

The extent of the branches of the vine is, in favourable situations and circumstances, fully commensurate with its produce and the period of its endurance.

In the hedges of Italy and in the forests of our own coun-

try the loftiest poplars, oaks, elms, and other lords of the woods are overtopped by their twining branches, and in many instances trees are wholly covered by them. Speechly tells us of a vine which, in 1789 was growing in the open air, trained against a row of houses in Northallerton, Yorkshire, and which formerly covered a space of one hundred and thirty-seven square yards, having existed (in 1789) above 150 years, and that it was judged it would have extended, if permitted, to three or four times that space. The circumference of the stem of this vine, which died recently, was at a short distance from the ground three feet eleven inches.

The vine planted by Mr. Eden, at Valentine House, in Essex, (England) in 1758, which is the Black Hamburgh, and the parent of the vine at Hampton-court, has a stem nineteen inches in girth, and has extended itself to upwards of two hundred feet in length, and covers above one hundred and forty-seven yards. This vine is said, at remote periods, never to have produced less than three hundred weight of fruit annually, and sometimes four hundred and a quarter. The average profit was not less than eighty pounds sterling annually, when the grapes ripened in June; but afterwards when the hot house was kept warmer, so that they ripened in March, the crop is supposed to have been frequently worth 300*l.* per annum. The soil in which it grows is a light, loose, brownish mould, about two feet in depth, on a bottom of loose sand and coarse gravel; and it is probably from this soil being less congenial to it, and its receiving less attention, that it has been surpassed by its offspring at Hampton Court. It however continues so productive, that it produced two thousand ripe bunches in 1819.

The celebrated vine at Hampton Court, which was planted in 1769, has a stem thirteen inches in girth, and a principal branch one hundred and fourteen feet in length, the whole vine occupying above one hundred and sixteen square yards, and in one year produced two thousand two hundred bunches of fruit, each weighing on an average a pound—in all, about a ton.

Valerianus Cornelius mentions a vine that encompassed and surrounded a good farm house with its branches, and Columella states that Seneca had a vine which produced him two thousand bunches of grapes in a year.

But although it is but latterly that the attention of our country has been particularly drawn to the culture of the grape, and but ten years have elapsed since our native "Isabella" was brought into notice, I doubt not there are vines now to be found covering as many square yards as those before enumerated, and which have even produced as many clusters of fruit, although the diameter of the stock is not in any case one-fourth of the size to which the former had attained. The native Catawba, the Alexander, the Scuppernon, and various others, are of such rapid growth, that it needs but a few years to form vines of equal extent and produce with those so famed by the ancients and moderns of other climes.

Size of the vine.

The vine is considered and classed as a trailing shrub, yet there are numerous instances where, in a wild state, it has arrived at great dimensions, and there are even cases where it has done so (though to a less degree), when subjected to the culture bestowed on it by man, several instances of which have been already enumerated.

The size to which the trunk or stem sometimes attains is so great, as to have been formed into planks of fifteen inches in breadth, and also to have been used in furniture and statues. The wood is of the greatest durability, and Pliny states that none is of a more lasting nature, and that vines were with justice in olden times, on account of their great size, ranked among trees. Both he and Theophrastus also make mention of a vine which had attained a bulk sufficient to make a statue of Jupiter, for the city of Apollonium; and the columns for Juno's temple at Metapont were also made of the vine. The great doors of the cathedral of Ravenna were also made of vine planks, some of which are twelve feet long and fourteen to fifteen inches broad,

the soil of that country producing vines of prodigious growth. Another vine is mentioned by Strabo, who lived in the reign of Augustus, as growing in Margiana, which was twelve feet in circumference, who also states, that the vines there produced bunches of grapes two cubits or a yard in length. At Ecoan, near Paris, the seat of the late Duke of Montmorency is a table which we are assured was made from the body of a single vine.

Olearius affirms that he found many vines near the Caspian Sea whose trunks were as big as a man; and on the Barbary coast vines are now growing of surprising dimensions, some of them having trunks eight or nine feet in circumference. There was a vine at Besançon, in France, which died in 1793, that had a trunk one metre and eight decimetres in diameter. But what renders these facts the more astonishing is, that a tree or vine, which grows in such a wreathed or twisted manner, more like a rope than like timber, and needing the support of others, should attain to such a bulk and firm consistence. It is not, however, to be expected that vines frequently pruned and dressed will often attain to such great dimensions, as the vigour of the stock is by such means transfused into the branches, and exhausted in the production of fruit. Such extraordinary dimensions and such great age are not to be looked for in cold and incongenial climes; although instances have occurred in England, and other northern climates, where being placed in a genial soil and situation, they have attained to an amazing size and expansion.

Size of the bunches and berries.

Almost incredible as the magnitude to which the vine has attained in some cases, may appear, it will doubtless equally amaze some persons to know the size to which its bunches and fruit have arrived. We have accounts of fruit and clusters of such extraordinary size as to appear incredible to our usual conception of grapes. We learn from Heutius that in Crete, Chios, and other islands in the Archipelago, the vines afford

bunches of grapes of from ten to forty pounds weight each. Chios, now Scio, which has been often brought to mind during the recent struggle of Greece, has long been celebrated for its vineyards, and its wines have been immortalized by the pen of Virgil. Pliny gives us an account of Rhemnius Palæmon, a renowned Roman grammarian, who bought a farm within ten miles of the city of Rome, for which he paid six hundred thousand sesterces, and that he so improved it by cultivation, that the produce of his vines in a single year sold for four hundred thousand sesterces. His vines produced "such huge and mighty clusters of grapes," that the people went from all quarters to see them. The great success which attended his effort was attributed by some to his deep learning, while others accused him of using magic and the black art. The bunch of grapes which was borne on a girdle by two of the spies on their return from the land of Canaan has been already referred to; and the grapes of Damascus at the present day are often found to weigh upwards of twenty-five pounds the bunch.

We find in the publications by John Heyman, professor of oriental literature in the university of Leyden, and in those of Egidius Van Egmont, envoy from the states to the king of Naples, who have given their observations on the present condition of Asia Minor, that in the town of Sidonijah, which is situated at four hours' journey from Damascus, some of the grapes were as large as a pigeon's egg, and of most exquisite taste. These circumstances corroborate the opinion already advanced and generally entertained, that the species of grape now so widely disseminated, and which has been so long cultivated throughout Europe and elsewhere, is a native of Asia. The cause of our not hearing more at the present period, of enormous clusters of grapes growing in the eastern parts of Syria, is to be attributed to the circumstance of that portion of country having been for eleven centuries, since Abubeker overran it, under the dominion of the Saracens, and they being of the Mahommedan faith, and the use of wine consequently prohibited, it may be very reasonably supposed that the culture of the vine has been almost totally neglected.

Several remarkable vines, at present existing in England, have been already mentioned. A collection belonging to the Duke of Portland, at Welbeck, is said to comprise above a hundred kinds; and it was he who, in 1781, made a present of a bunch of grapes to the Marquis of Rockingham, which grew in his vinery, and weighed nineteen pounds and a half. This bunch was nineteen and a half inches in the greatest diameter, four and a half feet in circumference, and twenty-one and three quarter inches in length, and was conveyed a distance of twenty miles by four men who carried it by pairs in their turns, suspended on a staff. This was of the variety well known by the title of the Syrian grape, and now found in several collections in this country.

In the year 1821, a bunch of white grapes was produced in the garden of the Hon. F. G. Howard, at Elford-hall, Staffordshire, which weighed fifteen pounds.

In the vineyards, however, in the north of France and Germany, where vines are grown as dwarf standards, the general produce is only from three to nine bunches from each vine.

CHAPTER V.

Preliminary remarks on soil, culture, &c.

It is perhaps universally known that the nature of the vine varies in different climates, and that its produce is also operated upon by the same influence. It is therefore necessary to be acquainted with the cause of these differences in order to establish certain general principles, and to know not only what these are, but to be enabled to foresee and anticipate their results.

These causes consist in the difference of climates, in the nature and exposition of the soil, in the character of the seasons, and the methods of culture. We will therefore discuss

in succession the operation and effect of these different agents, and then deduce the natural consequences, both in respect to the nature of the soil in which the vine is cultivated, and to the kind of culture which appears most suitable to it.

The general principles which we shall establish in speaking of each of these causes separately, will allow of many exceptions: this will be easily perceived when we reflect that the operation of one of these causes may be perhaps counteracted by the union of all the other agents, which prevent or destroy its natural effect. In another case the excellence of the soil, the appropriateness of the climate, and the quality of the vine, may counterbalance the effect of exposition and afford good wine in a situation where, if we considered the exposition alone, we should judge the produce would be of bad quality. But the principles are not the less established; and the only importance that can be attached to these apparent contradictions is, that in order to ascertain the true result in every case, it is necessary to take into account the operation of all the influential causes, and to consider them as the necessary elements of the calculation.

Climate.

The vine is now considered as a native or as naturalized in the temperate climates of both hemispheres. The culture of vineyards in the old world extends from the twenty-first to the fifty-first degree of north latitude, or from Schiraz in Persia, to Coblentz, on the Rhine: some authors, however, only extend its southern limit to the twenty-fifth degree of latitude. Vineyards are also to be found near Dresden, and in Moravia; and the above limits also include the southern coast of England within the vine region. The vineyards of Germany, situated beyond the fifty-first degree, are, however, considered dubious in regard to their product.

It is affirmed by some writers that it seldom flourishes within twenty-five or even thirty degrees of the equinoctial line, so as to produce good fruit; but this statement would exclude it

from some countries where it is known to prosper. Thunberg says, that grapes do not ripen very well in Japan, and are not high flavoured; but Browne and Lunan tell us that the Muscadine grape ripens well in Jamaica, maturing all its berries nearly at the same time, which it produces in clusters of from eight to ten pounds weight, the pulp of the fruit having been found to be less watery and more fleshy than in those of the south of France, and that two crops and often three are produced in a year, as has been the case in some other West India islands. They consider that it would yield a mellow and rich wine if attention were paid to it. It is therefore remarkable that sufficient attention has not been there devoted to it, even to raise wine for their own consumption. The author has also, at the request of several skilful horticulturists resident there, sent to that island assortments of the finest varieties of grapes, and he deems this ample proof, that they had been generally found to succeed; but it is possible their culture may have been confined to the mountain lands, which are much cooler than the plains.

It appears difficult to reconcile the statements, that the vine will not succeed in tropical climates, with the fact that many varieties support the greatest artificial heat of our hothouses not only uninjured, but with every favourable result to be derived from an increased and accelerated vegetation; but I will not discuss this point further at present, it being sufficient for my purpose to consider the limit as set down by the authors who have been referred to.

We now come to the fact universally acknowledged and adopted, that all climates are not suitable to the culture of the vine. If it grows and appears to vegetate with vigour in very northern climates, it is nevertheless true that its fruit would not attain there to a sufficient degree of maturity; and it is an invariable truth, that beyond the fifty-first degree of latitude, the juice of the grape does not possess those principles necessary in fermentation to produce good wine.

It is with the vine in respect to climate as of all other vegetable productions. We find at the north a vigorous growth,

the plants well nourished and very succulent; whilst the south presents us only with productions replete with aroma, resin, and volatile oil. Here every thing is converted into spirit, there all is employed in imparting vigour.

The characters so marked as regards vegetation, are also extended to the phenomena of animalization, where spirit and sensibility appear to be the appendages of southern climates, whilst strength is the attribute of the inhabitants of the north. Some travellers have observed that several insipid vegetables of Greenland acquired taste and flavour in the gardens of London. Reynier noticed that the melilotus, which in warm countries has a penetrating odour, possesses none in Holland; and it is well known that the most subtle poisons of particular plants, and of many animals, are extinguished and lose their potency by degrees in those which exist in climates further north. The saccharine quality of some vegetables is not perfectly developed except in tropical countries; the sugar cane, often cultivated in our gardens, possesses scarcely any of the saccharine principle; and the grape itself is sour, harsh, and insipid, when cultivated too far north.

The aroma or perfume of the grape, as well as the saccharine principle, are then the result of a bright and constant sun. The sour or sharp juice which is contained in the fruit at its first formation, cannot be suitably elaborated far to the north, and this primitive character of immaturity is still retained when the return of frost congeals the organs of maturation.

In like manner the grape at the north, possessing to a great degree the principles of putrefaction, contains scarcely any element of spirituous fermentation; and the juice expressed from it, when it has gone through that process, produces a sour liquor, containing barely sufficient alcohol to prevent the advance of a putrid fermentation.

With regard to the vine, as well as every other production of nature, there exist climates which are peculiarly suitable, and in Europe it is in those which lie between the thirty-fifth and fiftieth degrees of latitude, that the most beneficial results are to be attained from the culture of this most valuable vegetable pro-

duction. It is between these two points that are to be found the most renowned vineyards, and the countries most celebrated for their wines, such as Spain, Portugal, France, Italy, Austria, Hungary, Transylvania, and a part of Greece. But of all these countries, France presents by far the greatest extent of vineyards, and no one of the others possesses as great a variety of temperature, or such a diversity of soil and exposition. From the shore of the Rhine to the foot of the Pyrenees, the vine is almost every where cultivated, and we find in this extensive vine region the different species of wines most esteemed for their delicacy of flavour, as well as those most prized for their spirit. In that country they are also produced in such abundance, as not only to suffice for their own immense consumption, but to furnish the nation with infinite resources derived from this species of culture, which form an object of export to numerous nations in the character of wines, and in that of the choicest brandies obtained by distillation. The very great variety of wines which France produces, causes also within her own limits an active trade between the different departments; but although climate gives to its productions a general and indelible character, there are circumstances that modify and restrain its effects; and it is only by turning to advantage its principal operations, by a skilful attention to their application, that we can succeed in deriving from them the best results of which the climate is susceptible. It is from inattention to this particular, that we see produced in the same climate, wines of various qualities, because the soil, exposure, and culture, often modify and prevent the immediate effect of this great agent.

In respect to another point of view, the most intelligent writers affirm, that there are some kinds of vines which will not allow of being cultivated indiscriminately in this or that locality. The soil, climate, exposition, and culture, must all be peculiarly appropriate to their inflexible character, and the least variation causes an essential change in the produce. These writers attribute it to this cause, that the vines of Greece, when transported to Italy, no longer yielded the same wine;

and that the vines of Falerno, cultivated at the base of Vesuvius, have changed their character; and experience has confirmed, that the vines of Burgundy, transported to the south of France, do not produce wines equally delicate and agreeable.

The French writers state, that the qualities which characterize certain wines, cannot be re-produced in various places, and that to attain this object, it would require the constant influence of the same causes, and that as it is impossible to reunite all these, it must be necessarily expected that changes and modifications will ensue.

Much, however, as I have studied various authors on these points, I do not feel willing to allow, that trifling variations in climate produce so great changes as are frequently attributed to them, and think that very great allowances are to be made for the wide differences which exist in the mode of culture, and particularly for the great variations in the process adopted in making the wines. The most eminent writers of the French Institute assert that more depends on a judicious selection of the varieties of grapes, than on the climate. It is however a just conclusion, that warm climates, by favouring the formation of the saccharine principle, produce very spirituous wines, inasmuch as heat is essentially necessary to their production.

But it is requisite that the fermentation should operate in such manner as to decompose all the saccharine matter of the grape, without which we would have only very sweet wines, as is observed in some hot climates, and in those cases where the saccharine juice of the grape is too dense to attain a complete decomposition.

Cold climates can only produce weak wines, of little body; but these are sometimes agreeably perfumed. The grapes in which there exists but little of the saccharine principle are not adequate to the formation of alcohol, which constitutes the whole strength of wines. But as, on the other hand the heat produced by fermentation of these grapes is very moderate, the aromatic principle is preserved in all its force, and contributes to render these wines very pleasant, although they are weak.

When the weather becomes cold in the first days of October, it often happens in the climate of Paris that the grape ceases to ripen, and the berries rot in succession; and the wine made from such grapes is deficient in strength, and of short durability.

Soil.

The vine will grow in every species of soil, but its productions are all modified according to the nature of that in which it is cultivated. There is a manner of cultivating it, founded upon its natural properties, which is essentially beneficial, and which, without being prejudicial to its duration, causes it to yield constant crops, and imparts perfect maturity to the fruit. It cannot be doubted that the earth, according to its nature, modifies after a different manner the alimentary principles of plants, and also, that it will have in itself a decided influence upon the quality of wines; but this advantage will be so much the more sensibly felt, according as the soil by its nature may possess more influence upon the maturity and perfection of the grapes.

If we were to form our judgment of the quality of the wine, by the vigour of vegetation, it would be to the soils that are rich, humid, and highly manured, that we should confide the vine culture. But experience has taught us, that scarcely ever is the goodness of the wine in proportion to the growth of the plants. It might be said that nature, ever careful in the distribution and appropriation of each description of soil to a particular species of product, reserved the dry and light soils for the vine, and assigned the culture of grain to those which are rich and strong.

Hic segetes, illic veniunt felicius uvæ. It is by a link of this admirable distribution, that agriculture covers with varied productions the surface of our planet; and it is only incumbent on us not to interrupt the natural order, and to apply to each locality the culture that is most suitable to it, in order to obtain in almost every situation both abundant and varied crops. For although the vine accommodates itself in fact to every species

of soil, provided it is not impervious to the extension of its roots, nor saturated with stagnant water; yet, in order to have grapes which abound in the saccharine principle, it is necessary to plant them in a dry light soil. The nature of the soil is consequently one of the most important points to be examined.

Strong and clayey soils are not in any respect suitable to the culture of the vine, for not only are the roots deprived of the power to extend themselves and ramify to a suitable degree in such stiff and compact soils, but the facility with which they become sodden with water, and their tendency to retain it, cause a continued state of humidity, which rots the roots, and imparts to all the vines an unhealthy appearance, which is the precursor of their final destruction. It is of strong soils that do not partake of the injurious qualities which belong to clay soils, that I had previously spoken. In such the vine grows and vegetates freely, but this vigour of vegetatation itself is essentially detrimental to the quality of the grape, which attains with difficulty to maturity, and generally produces wine without spirit or flavour. Nevertheless, soils of this description are sometimes appropriated to the vine, because the abundant produce makes up for the deficiency in the quality; and it is often more advantageous to the proprietor to plant vineyards than to raise grain, as on such soils they require but little culture. Besides, the weak but abundant wines furnish a suitable drink to travellers of all classes, and can be used for distillation. It is well known to all cultivators that humid soils are not suitable to the vine. When soils are continually saturated, whether they are strong or light, they are equally incongenial to its success: in many cases the vine languishes, rots, and perishes; and even where the vegetation is vigorous, the wine obtained will be watery, weak, and destitute of flavour.

Calcareous soils are in general proper for the vine; being arid, dry, and light, they afford a support suitable to the plant. The water with which they are impregnated at intervals, circulates and penetrates freely throughout the whole, the nume-

rous ramifications of the roots absorb it at all their pores, and in all these respects a calcareous soil is very favourable to the vine. In general, wines made from such soils have much spirit, and the culture of them is so much the more easy as the earth is light and loose; it has been also observed, that arid soils seem to have been exclusively destined for the vine, as the deficiency of water, of vegetable mould, and of fertility, repels the idea of any other culture.

But there are soils still more favorable to the vine: these are such as are, at the same time, light and sandy or gravelly; the roots glide easily through a soil which the mixture of light earth and of rounded pebbles renders very permeable; the bed of gravel which covers the surface of the earth, protects it from the parching heat of the sun, and whilst the vine and the fruit receive the benign influence of that planet, the root being suitably nourished, supplies the sap necessary for the advancement of vegetation. Soils of this character are called by the different titles of gravelly, freestone, stony, sandy, &c. Volcanic soils yield also delicious wines; and it is mentioned by Chaptal, that he had possessed opportunities of observing in many of the southern parts of France, that the most vigorous vines and the choicest wines, were the produce of volcanic remains. These primitive soils having been a long time operated upon in the bosom of the globe by subterranean fires, present us with a close combination of almost every principle of the soils of the earth, these being perfectly intermingled, half vitrified, and decomposed by the combined effects of air and water, furnish all the elements requisite for favourable vegetation, and the heat with which they have been impregnated, seems to impart itself successively to all the plants which are cultivated on them. The Tokay wines, and also the finest Italian wines, are produced on volcanic remains.—The last bishop of Agde cleared away and planted with vines the old volcano of the mountain at the foot of which that ancient city is situated, and these plantations now form one of the richest vineyards of that district.

There are places on the widely varied surface of our globe

where the granite no longer presents that durability, and that unalterable appearance which form the general character of that primitive rock. It appears crumbled and dusty, and only presents the eye with the semblance of dry sand, of a coarser or finer description. It is on these mouldering remains that in many parts of France they cultivate vineyards; and when a favourable exposition unites to aid their advancement, the wine is of superior quality. The famed Hermitage wine is produced from a soil of this description. It is easy to decide, in accordance with the principles which we have laid down, that a soil similar to the one just described cannot fail to be congenial to the production of good wines. Here are found at once that lightness of the earth which readily allows the roots to extend, the water to pass through, and the air to penetrate; the gravelly surface which moderates and arrests the solar heats; that valuable combination of the elements of earth whose union appears so advantageous to every species of vegetation.

From the result of various observations, it seems that all light soils, whatever be their colour, when porous, fine, and friable in their composition, and which allow the water to run freely off, both from the surface and the substratum, are the most suitable for the plant and for the quality of the wine.

The agriculturist, therefore, who is more anxious in regard to the quality than to the abundance of his vintage, will establish his vineyard in light and gravelly soils, and will not select a rich and strong soil, except with the intent of sacrificing excellence to quantity.

But notwithstanding the principles that have been advanced are proved by nearly all the observations and experiments yet known, there are nevertheless particular exceptions which appear to controvert in some degree their universal application; for Latouche observes, in the Memoir of the Society of Agriculture of the Seine, that the esteemed vineyards of Aix, Epernay and Hautvilliers on the Marne, have the same exposures, and the same soil, as the grain fields which surround them. It has however been remarked, that there probably exist differences of importance not discoverable at first view, but which

need a careful inspection to enable a correct judgment to be formed; and indeed we well know that the surface of the earth often presents a very uncertain criterion by which to judge of its formation at some distance beneath; and as it is the subsoil that imparts the most influence to the roots of the vine, so it is to that we are to look for the most important results on its produce.

It is observed by the same writer, that the primitive soil in the vineyards which occupy the first rank in Champagne, is found covered over with an artificial surface which is formed by the cultivators, from a mixture of turf and very rotten manure, of common soil found at the foot of the hills, and sometimes of black putrid sands. These species of soil are transported into the vineyards at any periods of the year, except during the time of vintage.

Notwithstanding, however, the propriety of being circumspect in selecting soils, still there are frequent instances where excellent wines and bad wines are produced from the same kind of soil.

In general where lands are of great value, those only should be devoted to vines where the soil is thin and inappropriate by nature or position for the production of grain, &c. because it is in such as these that the vine finds the degree of humidity requisite to cause the grapes to attain to full size, and not so much as to counterpoise the action of solar heat in the formation of saccharine matter, and in evaporation at the period of maturity, on which depends the excellence of the wine. By such course, a tract of land which would have yielded nothing but bushes, on account of its being too hilly, or so stony as not to be susceptible of ploughing; or having a thin soil, incapable of retaining during the heat of summer sufficient moisture for the growth of other products—is made to yield a large revenue, often far greater than that produced by good soils under other species of culture.

A rich soil, as has been already stated, is advantageous when great product is required, but not when the quality is the object sought for; as the growth is so much prolonged,

and the leaves become so much larger, that vegetation does not cease until after the heat has subsided, and the grapes are too much sheltered from the rays of the sun; whose heat, as already remarked, is itself the true cause of the formation of the saccharine matter.

The vine having roots which are in part perpendicular, and partly horizontal, it consequently accommodates itself equally to a deep or a shallow soil. To other motives of preference for soils of the latter description may be joined the consideration, that the roots feel more easily the effect of the solar heat; that their vegetation is more speedy in the spring; that they elaborate the sap more perfectly during the summer; and that the grape attains sooner to maturity in autumn. And I cannot too fully impress the fact, that as it is the intensity of heat which with the selection of the variety, influences to the greatest degree the quality of the wine, it is necessary to take advantage of every circumstance, in order to increase that intensity; and in every country the grape which ripens a month sooner whilst enjoying the heat of a summer's sun, must be sweeter than that which ripens after the heat has diminished.

The fruit of the vineyards in the environs of Bonn, which are planted upon basalt, ripens sooner and more perfectly than those planted upon the neighbouring calcareous hills, and furnishes consequently better wine; therefore the former vineyards rent at a higher rate than the latter. In a memoir of Rozier he remarks, that the good kinds of grapes do not afford superior wines in Burgundy, at Côte Rôtie, &c. except when the summer and autumn have been hot, and the fruit has acquired a perfect maturity.

Influence of soil, &c. on flavour.

There are a great many localities in France and other countries, where the wines have a peculiar flavour, often not agreeable, and which is termed taste of the soil, and the opinion is generally entertained that it is the nature of the soil which causes it. What has probably given rise to and sup-

ported this opinion is, that wines which had no bad taste have acquired it when the vines which produced them have been too highly manured with the filth of streets, night soil, &c. I will make one observation, which induces the belief that it is not always by passing into the sap that this bad taste is produced, but that it is sometimes communicated to the fruit by means of simple emanation. A vine on a trellice fixed in a garden at the angle of a building, extended half of its shoots in a yard; heaps of manure were placed under this part of the vine, and the grapes became bad, but those on the other part retained their quality. This vine was the chasselas.

Substrata of vineyards in France.

The greater part of the vineyards of France are in a soil composed of clay and limestone, sometimes primitive, as those of Langres, Nuits, Chalons, Moselle, Barrois, Haut-Rhin, Haute-Saone, Doubs, Jura, and Haute Marne, and sometimes secondary, as those of Entre-deux-mers at Bordeaux, and a part of those in the environs of Paris, &c. The greatest part of the vines of the departments of Champagne, which are well known to yield estimable wines, are planted on a chalky soil, where often there is not more than five or six inches of earth, or rather of marl, above the rock, insomuch that in dry seasons the vines suffer greatly, as was the case in 1810. Latouche attributed to the chalk the weakness of the Champagne wines, but other authors seem with more justice to attribute it to the deficiency of heat in that climate.

The nature of the soil next to be noticed is a gravelly clay, such as that of the graves of Bordeaux, the environs of Nismes, Montpellier, and the coast of the Rhone, &c. There are fine wines and very bad wines on the decomposed remains of granite, as those of Côte-Rotie, Hermitage, Romanéche, Chenard, and Beaujeu among the former, and some localities of Upper Burgundy, Vosges, Cevennes, and Limousin among the latter.

The vines of Anjou grow on soils whose base is slate

(schist,) which is deemed excellent, and they produce white wines, whose saccharine and sparkling character assimilate much to those of Côte-Rotie, St. Peray, &c.; and similarly situated are also the esteemed vineyards of Oberwesel, Kaub, Vogtsberg, and Kulhberg on the borders of the Rhine.

Volcanic remains yield often, as has been already stated, wines of the first quality, among which may be enumerated a part of those of the Rhine, those of Vesuvius, Etna, and Rochemaure; but in some cases they afford very indifferent ones, as those of Auvergne; however, in the latter district the climate is cold, on account of its elevation, which may cause their want of excellence. Argillaceous soils that retain the water which falls on them, never produce any but indifferent wines.

There are many localities where, under a surface of moderate thickness of clay and limestone, there are found beds of rocks of moderate thickness, broken and split in every direction. These are deemed exceedingly favourable for the culture of the vine, as a portion of the roots insinuate themselves into the interstices, and there find in the heat of summer, notwithstanding the dryness of the surface, a degree of humidity fully adequate to their growth. It is upon the same principle that soils which contain the most stones are preferred in many districts of France, and that Rozier was successful in his experiment of causing his vineyard to be paved in the environs of Beziers.

Instances sometimes occur where a vineyard whose superficial soil is apparently the same in every respect, will produce in different sections of it, wines of various qualities. Of this description M. Dussieux cites the small vineyard of Morachet or Mont Rachet, as a striking example, it being distinguished in three parts, not by any variation in the soil, exposure, or varieties of the grape, but according only to the difference in the quality of the produce; and whilst the wine from one section sells at twelve hundred francs the *pièce*, that from the second commands but eight hundred, and from the third but four hundred. This variation is attributed no doubt justly to the nature or

position of the substrata or beds on which the soil rests, and on which culture can have no effect, as the effects of labour do not extend to a sufficient depth. It has been suggested, however, that possibly the vines of the several parts are not all of the same age, and a great difference in this point is known to carry with it important variations in the results, as will be shown hereafter. For my own part, I do not put much faith in those miraculous accounts; and am fully persuaded that where real differences exist, they may be readily traced to a plain and adequate cause, and that the mystery which some lovers of the marvellous have long delighted to hang over nature's simplest operations will, when they are subjected to suitable investigation, be no longer allowed to obscure our vision and to deprive us of real light.

CHAPTER VII.

Exposition.

Even the same climate, the same culture, and the same soil, often produce wines of very different qualities; and it frequently occurs in wine countries, that the summit of a mountain, whose surface is completely covered over with vineyards, yields in its various aspects an astonishing variety of wines. Were we to judge of places by comparing the nature of their productions, we should be led to suppose that every climate and every species of soil had combined to furnish the various articles which are frequently in fact but the produce of contiguous soils, possessing different exposures.

This variation in the productions of the earth arising from exposition alone, is perceptible in all the results which depend on vegetation; the wood cut in that part of a forest which fronts the north, is much less combustible than that of the same kind which grows on the south. Odoriferous and sweet tasted

plants lose their perfume and flavour when they are cultivated in rich soils with a northern exposure. Pliny had even noticed in his day, that the wood on the south side of the Appennines was of better quality than that growing in other aspects; and every one is well acquainted with the effect of exposition upon vegetables and fruits.

These phenomena, so sensibly felt by all the products of vegetation, are more particularly so by the grape; and a vine exposed to the south yields fruit very different from those which front the north. Even the surface of the vineyard, possessing a greater or less inclination, although the exposure is the same, gives rise to many variations. The summit, the middle, or the base of a hill yield very different crops. An exposed summit feels the immediate effect of every change, and of every movement which arises in the atmosphere; the winds injure the vines, the fogs have a constant effect upon them, the temperature is there more variable and cold; all these circumstances united cause the grapes in such a situation to be less abundant, to attain more slowly and imperfectly to maturity, and the wine which is made from them is inferior in quality to that produced on the middle of the hill, whose position averts the injurious effects of most of the causes I have enumerated. The base of the hill presents, in its turn, serious inconveniences. The general goodness of the soil will, without doubt, support the growth of a vigorous vineyard, but the fruit is neither as sweet, nor of as pleasant a flavour as about the middle of the hill; the air is constantly filled with humidity, and the earth continually saturated with water, which enlarge the fruit and advance vegetation to a degree prejudicial to the quality of the wine.

The most favourable exposure for a vineyard is between the rising and mid-day sun. Hills that are situated above a plain, through which there runs a river or a constant stream of water, afford the best wine; but it is preferable that they should not be located too near to it.

An exposure fronting the setting sun is deemed very unfavourable: the earth dried by the heat of the day, presents

towards evening to the oblique solar rays, which are almost parallel with the horizon, only an arid soil deprived of humidity; the sun also in such case by its position is enabled to penetrate to the lower part of the vines, and darts its rays upon grapes which are unprotected, heats and dries them, and ripens them prematurely, stopping their growth before they have attained their usual size, and before the proper period of their maturity has arrived.

Nothing can afford a more correct judgment of the influence of exposition, than to view one's self the effects in a vineyard, located on uneven ground, which is here and there planted with trees; in one place all exposures seem concentrated upon a single point, and there are presented all the effects which should result from it. The vines, shaded by the trees, push out long thin shoots, that yield but little fruit, which only attains a late and imperfect maturity. On the most elevated part of the vineyard, which is generally less covered, the vegetation is less vigorous, but the fruit is of better quality than in the low bottoms. It is invariably on this part most exposed to the sun, that we may meet with the finest grapes.

Thiebaut de Berneaud remarks that an eastern aspect would be preferable to all others, if it did not expose the plants during the first warm days of spring, to be blasted by the burning rays of the sun operating upon the small isicles, each of which acts as a lens. A southern exposure (he continues) is generally too hot in a warm climate, and a western one is least to be desired, as the plant there receives a direct heat, after the early hours of the day have abstracted the moisture, and therefore dries and burns it; and he recommends as a general rule, that in southern regions an eastern aspect should have the preference, and in northern ones that a southern exposure should be selected.

A northern exposure has been generally regarded as the worst for vineyards, from the consideration that the cold and moist winds retard the maturity of the fruit, and that from this cause it must remain sour, harsh, and devoid of sweetness, and that the wine partaking of course of these qualities,

must consequently be weak and of inferior flavour. It will be necessary to weigh the probability of these effects which appear to apply fully only to the more northern latitudes, or to localities peculiarly unfavourable. This opinion, so often advanced by intelligent writers, as well as the general principles which we have previously laid down in regard to the effect of exposition, has to contend with many exceptions. The wines of the Rhine, so much esteemed by many persons, are produced from vineyards having a northern exposition; at least in the valley of the Rhine as far as Bonn, and in that of the Meuse as far as Liege, the famous vineyards of Epernay and Versenay on the mountain of Rheims, are exposed directly to the north, although in latitude 49 deg. 15 min. and in the district which terminates the successful culture of the vine in that direction.

The vineyards of Nuits and of Beaune, as well as the best of Beaugenci and Blois, face the rising sun; those of Loire-et-Cher front the north and the meridian indiscriminately; the finest crus of the vineyards of Indre-et-Loire, and the best hills of Saumur, face the north; and among the finest wines of Angers we find some made in every exposure. There are, in fact, few wine districts in the east of France, where some vineyards have not a north exposure, as is well known, and frequently these are the vineyards whose produce is the most esteemed as wines, as I will show hereafter. It may, therefore, with justice be argued, that advantages are to be derived from a northern exposure which are of the greatest importance. In a climate subject to late spring frosts, such a situation is calculated to retard the expansion of the foliage, until the period of danger shall be past or nearly so. Vines, therefore, which have a northern aspect, possess a great advantage over others, because they are far less subject to the disastrous effects of spring frosts, and in our country where the heat of the summer sun is so powerful, and the atmosphere becomes during that period so filled with caloric, I think the vines cannot fail to receive a sufficiency of its influence to perfect the maturity of the fruit, particularly in the middle and southern parts

of the Union. One of the greatest difficulties we have yet had to contend with in some sections of our country, has been late spring frosts, and this would by such an exposition be in a great degree removed; and I think the subject worthy of the particular attention of those who plant vineyards, in order that experiments may be made calculated to give us a full and perfect knowledge in regard to any advantages that may be derived from such a course.

The farther we advance to the north, the more necessary it appears to be to plant vineyards only on the hills, in consequence of the greater action of the sun's rays, and of the diminished influence of the humidity of the soil. Localities exist in cold climates which are so sheltered that they experience during summer a degree of heat equal to hot climates. These are such as have a southern exposure, and are shut in by mountains from the north, east, and west winds. The deeper the vallies, the more easily the culture of the vine is extended to the north, as is proved by those of the Rhine, Moselle, &c.; and the greater the angle formed by the hill side, the more directly will the vine receive the sun's heat, and it will consequently mature its fruit more perfectly, and yield superior wine in proportion to the steepness of the mountain. Exposition is therefore deemed one of the primary considerations in the location of vineyards in Germany, and in the north and middle of France, and the same rule must be applied to their location in the northern parts of our Union, where innumerable localities of the description referred to are to be every where found.

In the department of Arriege, at the foot of the Pyrenees, the vineyards are planted half way up the highest mountains, in spots entirely covered with large smooth stones, and many of the fine vineyards of Tokay lie on the highest flanks and ridges of a promontory exposed to the north and west at the confluence of Bodrog and Thibisk, and are covered with large calcareous pebbles.

"*Bacchus amat colles*," says Virgil, and many persons suppose that good wine cannot be made in plains. This supposi-

tion is generally true in relation to northern climates, but there are, nevertheless, a great many vineyards in plains, or on lands almost level in every country which possesses vineyards. The districts of St. Denis and Sandillon, department of Loiret, and those which yield the finest Orleans wines, are plain lands. Medoc, in the department of Gironde, is entirely a champaign country, and there we know are situated the famed vineyards of Lafitte, Chateau-Margaux, Larose, Leoville, Branc-Mouton, &c. the wines of which are high flavoured, pure, smooth, velvetty, full of body and spirit, with flavour resembling that of the violet or the raspberry. The same remark will apply to a great number of the wines of Languedoc, to the well known vineyards of Tonnere, to Chablis, in the department of L'Yonne, the banks of the Rhone, and to those of the department of Charente-inferieure: in Burgundy there are also several excellent vineyards that are similarly situated.

In cold latitudes it is requisite to plant vineyards as distant as possible from woods and water, as both these render the atmosphere more cool. It is in cold climates particularly that a dry soil is to be preferred to a moist one, in cases where the quality of the produce is of particular importance. In hot climates the vine yields abundantly without much care, but in northern latitudes it requires skill to accomplish the desired end.

Vineyards may be cultivated with success on mountains in a country where the natural climate of the plains and in the valleys would not admit of it. The more elevated the mountain, the more the temperature is diminished. Vines therefore planted on those in hot countries that are very high, find themselves in a similar climate to those planted in the plains and vallies of temperate and cold latitudes. It is from this circumstance that the vine is cultivated in Abyssinia, on Mount Lebanon, on the high table lands of Mexico, and the Cordilleras on the route from Buenos Ayres to Chili, when it will not succeed in Sennaar and other places similarly situated.

The middle part of the hills, as has been noticed, yield in all cases the best wine, because the grapes ripen there better; and it has been constantly remarked that those on the most elevated and on the lowest part ripen latest, the former because they are exposed to the winds, and the latter because their roots are in a more humid situation, and they grow more vigorously. The skirts of hills and slopes gradually swelling from a plain are suitable positions for vineyards.

Narrow vales, ravines, and dells, through which a stream of water flows, are not good locations for vines on account of the winds and currents of cold air prevalent in such places, and the damp, fog, and mists arising from evaporation. It is not to be understood that vines will not succeed in the vicinity of a stream of running water, for the contrary opinion has been already advanced; but that such streams are disadvantageous only when the vineyards are located too near them in the colder latitudes, or when in such or more southern climates the location is so contracted as not to admit of a free and open action to the air, as well as to the solar rays: the vineyards on the Rhone, Gironde, and Marne bear witness to the strength of these arguments.

Although heat is absolutely necessary to ripen and to give sweetness and flavour to the grape, it would be erroneous to suppose that by its sole influence it can produce all the effects desirable. We can only consider it as an agent necessary in the elaboration, which presupposes that the earth supplies the juices which are requisite in the operation. Heat is a necessary agent; but it is not to be supposed that its influence may be exercised upon a parched soil, for in this case it burns rather than vivifies.

We sometimes witness in the burning climates of the south, that the natural heat of the sun, seconded by the effect of reverberation from certain rocks or particular soils, parches up the grapes which are there exposed to its power. The flourishing condition of a vine, and the good quality of the grape, depend therefore upon a proportionate influence and upon a

perfect equilibrium between the water which is to supply the aliment of the plant, and the warmth which can alone facilitate the elaboration.

CHAPTER VIII.

Seasons.

It is a well known fact that the character of the season materially affects the quality of the wine, and its influence may be naturally deduced from the principles which we have established in speaking of the effects of climate, soil, and exposure, since we have stated the influence which humidity, cold, and heat exercise on the formation and the quality of the grape. In fact, a cold and rainy season, in a country naturally hot and dry, will produce the same effect upon the grapes as a northern climate; this variation in the temperature, by making climates more like each other, assimilates their various productions.

The vine delights in a regular heat, and as the grape attains to perfection only in dry and sunny situations, therefore when a rainy season keeps the soil in a constant state of humidity, and maintains in the atmosphere a cold and moist temperature, the grape will not acquire either sweetness or flavour, and the wine made from it will necessarily be weak and insipid, although abundant. Such wines are preserved with difficulty, the small quantity of alcohol they contain being often insufficient to preserve them from decomposition; and the great evaporation which is natural to wines of this description, causes movements that continually tend to change their character. These vines often become ropy, and sometimes turn to vinegar, but their small portion of alcohol does not even allow of their making good vinegar; they also contain a great deal of malic acid, as will be shown hereafter;

it is this acid which gives them a peculiar taste, a sourness which is not acetous, and which forms a prevalent character in wines, according to their deficiency in spirit.

The influence of the seasons upon the vine is so well known in every wine country, that for a long period previous to the vintage, they predict what will be the quality of the wine.—In general, when the season is cold, the wine is harsh and bad tasted; when it is rainy, it is weak, with little spirit, and abundant, and it is destined in anticipation (at least in the south of France) to distillation, because it would be both difficult to preserve and disagreeable to drink.

We will now consider the effects of seasons, with all their attendant variations, and the difficulties to which they give rise under their respective heads, and point out as far as possible how these natural obstacles to success may be counteracted or modified in their injurious effects.

Rains.

A rainy season in any climate, or under any circumstances, is neither beneficial to the vine nor to its crops. The effect of continued rains upon the vine, and upon the produce of the vintage varies however according to the season at which they take place. If in winter, they stop the labour, at least where the soil is composed of marl, or apt to become miry, and the ploughing, trenching, pruning, and other operations are consequently impeded. In the spring at the time the vines begin to shoot, they cause a premature expansion of the buds and an excessive growth of the branches and leaves, which is injurious to the fruit, and causes a diminution in the number of bunches, and also of the berries on them. When the grapes are in flower, rains produce the coulure, or blight, especially if the weather is cold at the same time; when the grapes are half grown, they stop their growth, in consequence of the sap becoming watery and deficient in nourishment; when the fruit is more advanced, they tend to prevent their acquiring that saccharine flavour which is proper for them, and cause them to

ripen slowly; after maturity they retard the vintage, and cause the grapes to rot. This delay of the vintage is more or less in proportion as the rains are cold or of long continuance.

Fogs.

Fogs are injurious to the stock, flower, and fruit. Their effects are to render the vines more sensible to frost as well in spring as in autumn, and they have a tendency to advance the coulure or blight of the blossoms at the former season, and to retard the maturity of the fruit at the latter. The moisture they deposit saturates the plant so completely, that it exposes it to very great injury from heat arising from a sudden appearance of the sun. Most of the evils, however, which are attributed to fogs, are produced by cold, without which they would not exist, and fogs must therefore only be considered as secondary agents in the evils they create.

Droughts.

If a superabundant humidity is injurious to vines, extreme droughts are not less so. When of a minor degree, a drought prevents the leaves and fruit from being fully developed; in its greatest, it dries up the former and shrivels the latter, which destroys all prospects of a crop, and produces, even in subsequent years, effects analogous to autumn frost. When these excessive droughts happen at the period which precedes that of the maturity of the fruit, the grapes become sooner coloured, gain less in size, have a thicker skin, and juice less sweet, and yield less wine, and that of a worse quality. These effects are more or less felt according to the climate, soil, exposition, &c. By planting the vines close, and by sheltering them from the sun's heat by trees, hedges, &c. these inconveniences could be removed, but these means are repelled by the fact that weather moderately hot and dry is that which best advances the good quality of the produce of the vine, and that the injuries resulting from such a course would more than counterbalance

its benefits. In northern latitudes vines are more sensibly affected by a drought than in southern ones, because their roots are not as strong, and they are less accustomed to it.—The foliage of vines during a drought puts on a yellowish appearance and no longer fulfils its functions, which can alone be prevented by watering them.

Frosts.

The vine being a native of warm climates, is subject to be affected by frosts; this is the most formidable and most frequent of the evils to which its nature exposes it. Cultivators should therefore do every thing to protect it from their effects, and to diminish the injuries resulting therefrom. It is proper these injuries should be considered under three heads. The first comprises early autumnal frosts: these dry up the foliage before its time, injure the shoots whose wood is not yet ripened, prevent more or less the maturity of the fruit, thereby causing the wine to be of bad quality, and tend even to the destruction of the crop. Varieties that vegetate late, especially when the vines are not strong, are more exposed than others to the beforenamed effects. These frosts, by preventing the branches from completing their maturity, often produce consequences which are felt by the crops for succeeding years. When vines are materially injured by frost, it is best to prune them down to a single eye, and not to leave any long shoots, thus resigning the prospect of an abundant crop to the necessary re-establishment of the strength and vigour of the vines.

Under the second head are the severe winter frosts, which attack the branches after the leaves are fallen. Their effect upon the crop of the ensuing year are similar to the preceding, although in a less degree, as in this case it is in general only the upper part of the shoots which is affected; but it is far more disastrous when the whole shoot is injured, so that no living buds remain, because the vine is then forced to form new shoots from the old wood, an operation of much difficulty, and which produces such feeble branches, that it is generally

more advantageous to plant a new vine than to depend on it. It has been remarked that vines which are left tied to the poles are more liable to be injured by the severe winter frosts, than those which are loosened and left to trail on the ground. This fact is sufficiently explained by the circumstances of the snow often covering and protecting them, and by the emanations of caloric from the earth. It is, therefore, based on conclusive circumstances, and should be generally known and adopted. It is very seldom that the old wood of vines is frozen, and it is known when this does happen there is no other course but to dig up the vine. A vine whose branches have been partly frozen should be pruned later, so as to distinguish the living buds, and to cut off the shoots above them.

The third head to be considered is confined to spring frosts. They are very frequent, and occur in the south of France, as well as in the north, as may be equally said of our own country for nearly its whole extent. There are some localities, which from the quickness or delay of vegetation, are more subject to these than others, for a frost which kills a shoot that is only three or four days old, does no injury to one which has grown twelve or fifteen days. From this cause it arises that certain kinds are more subject than others to the effects of these frosts, and thence the necessity of considering the selection of the varieties a primary object of our attention, the great importance of which will be dwelt upon in the sequel.

It has been remarked, that of two neighbouring vineyards, which were situated as much as possible under similar circumstances, the one which had been in the spring the latest worked, was the most susceptible of the attacks of frost. This fact would indicate that after having terminated the winter work previous to the expansion of the shoots, no other work should be done until the period when frosts are no longer to be feared.

It has been noticed that the shoots of vines slightly frosted, which had not previously had the sun's rays upon them, are not destroyed; and also that on this account vineyards are

worse situated whose exposure faces the rising than those which face the setting sun. From this remark it has been concluded that in every case where by means of pumps they could moisten the shoots before sun rise, or by smoke could intercept the solar rays for a few moments, they could prevent the effects of frost, and this has been frequently proved by experience. The difficulty and expense of doing it are the only preventives to its more frequent adoption. It should, however, be added for the satisfaction of those who wish to employ smoke, that it should be prepared at the windward side of the vineyard, of litter or dead leaves, mingled with bushes, &c. the whole being made somewhat moist, and that the fire should be kindled half an hour before sunrise; the important point is, that this mass may burn without flame, and cause as dense a smoke as possible over the vineyard.

In some vineyards the effects of frost have been prevented by protecting each vine on the sun side with branches of pine trees, thereby sheltering them from winds and the sun's rays. A celebrated proprietor, in a season which was unsuccessful to neighbouring vineyards, secured by this course a crop double that of any of his neighbours, and of better quality. An hundred francs sufficed for the expense of protecting by this mode five arpents of vines at Silleri, whose produce sells at six francs the bottle. Since this practice was found to be successful, it has been much extended, and it is said in all cases with beneficial effect. Branches of cedar, or of any other evergreen trees, would answer equally well if those of pine were not easily procured, but the latter can scarcely be found wanting in any part of our country.

In the department of Jura, and in Piedmont, the vines are laid down and covered with earth during winter, less with a view to guard them against freezing, than to retard their spring vegetation and to shelter them from the late frosts of that season. They are treated in a similar manner, and doubtless for similar reasons, on the borders of the Rhine, and in the environs of Astracan.

The effects of spring frosts upon the vines vary according

to their intensity, and to the period when they take place. They frequently diminish and even annihilate all prospect of the year's crop; but it is only when very destructive and very late, that they injure those of after years. When the young shoots perish entirely, those which replace them produce little or no fruit; but great care should be taken of them, in order that their abundance of leaves may repair by autumn the injury sustained by the roots in the spring. There are some vignerons who, from experience, do not touch the vines so situated during summer, a course recommended both by theory and practice, but this is not to be understood as forbidding the pruning of the shoots frosted in the spring, an operation indispensably necessary immediately after the occurrence, and in doing which Olivier recommends that the shoots which are very much injured by the frost had better be cut close to the old wood.

Hail, winds, fire-blight, &c.

Next to frost, hail causes most injury to the vine. Its effects are felt in various ways: it tears the leaves, and prevents them fulfilling their operations, injures the young shoots, and thereby causes a loss of sap; it breaks the skin of the grapes, which, when they are yet green, prevents their growth, and when ripe, causes a loss of the juice. It is considered as generally advisable where vines are injured by hail, to prune shorter or to leave fewer branches to the vine, so that the plants may regain their strength the ensuing year.

Winds have also a great effect upon the vine; the dry east winds, the cold north winds, and the rainy winds of the south-west, are equally injurious at the several stages of its growth, and particularly so at the period of flowering, and at the approach of the fruit to maturity. Violent gales break down the poles, tear the foliage, &c. No rules can be prescribed on this subject, as they vary according to climate and situation. There are certain localities, however, which are more exposed than others to storms, and planting vineyards in such places

should be as far as possible avoided. Winds nevertheless in the spring of the year are useful, and diminish the action of frosts, as is continually exemplified in the vineyards on hills, when compared with those in vallies.

There are two attacks the vine sometimes receives in French vineyards, which are termed *brulure*. In the first the leaves redden suddenly, and fall off in a couple of days, this operates against the growth of the fruit, which becomes shrivelled and falls off; it is in the summer season after a fog, and during southerly winds, that this most frequently happens. In the second there are only some spots, different in size and more or less numerous, formed on the leaves, which injures them, but the evil is seldom of importance, except the fruit is attacked in the same manner, when the injury sustained is very serious.—The means pointed out to prevent these effects, such as smoke, &c. are not always practicable on a large scale on account of the expense. In some vine districts, they guard against them to a certain degree, by planting the vines in rows running from the rising to the setting sun. It is well known that the rising sun, when shining on these ranges, only strikes directly on those which commence them, and that the dew has time to evaporate before the sun gets far enough to the south, or is sufficiently high for its rays to affect the residue. Particular consideration in respect to this mode of planting the vines is highly recommended.

There are many attacks of different characters to which the vine is also subject in common with other trees, &c. but which it does not seem requisite to discuss here at length, and our intelligent countrymen will know how to make use of the proper discretion in order to remedy them. Some of the most important, however, will be noticed in the sequel of the work.

CHAPTER IX.

Influence of the variety—choice of varieties—effect of the age of the vine on the quality of its produce, &c.

The influence of the variety of the grape on the results of culture is deemed of such importance, that the selection of the vines is one of the primary considerations which the planter is to have in view in the formation of his vineyard. Indeed some intelligent French writers on the subject state, that it is the *first* point to which attention is to be given. And notwithstanding the great effect of soil on the wine, some very eminent authors contend that the variety of the grape has far more, and mention, as evidence, that many varieties of the grape have so peculiar and decided a flavour, that it cannot fail to he imparted to the wine which is made from them.

It is with the selection of varieties for a vineyard as with trees for an orchard; if a man who plants an orchard uses from economy, or other motives, only natural stocks, or trees ingrafted with inferior and common kinds, he can succeed in forming an orchard, it is true; but he discovers after it has come into bearing, that it is absolutely valueless from the worthlessness of its produce, and he is either under the necessity of regrafting it anew, and waiting another long period for it to attain a second time to bearing, or has totally to eradicate the miserable stocks, and replant it with such kinds as are really valuable. Perhaps of all the false attempts at true economy, that of planting an orchard or vineyard with inferior fruits, or unsuitable varieties, is the most weak in itself, and the most injurious to him who pursues it.

It is well known that there exist in the vineyards of France and other countries, an immense number of varieties of the grape, some earlier, some later; some with smaller, and others with larger fruit; more or less sweet; with larger or smaller bunches; some with purple berries; others with red, white,

gray, yellow, or greenish berries. These varieties produce not only in the same climate, soil, and exposure, and with the same mode of culture, wines differing in character, but even the wine of each respective variety sometimes varies with different circumstances.

There is no vigneron who is not aware that a certain variety of grape in his vineyard yields the best flavoured wine, the best wine for keeping, or a greater quantity, &c.; but he is frequently at the same time ignorant that there are in other districts, often very near him, varieties with which he is unacquainted, some of which are preferable in certain respects to his own. On this account there have been intelligent men, who after many years residence in different vineyards, have discovered the necessity of making known these choice varieties, and for nearly half a century, the French writers who have treated on the culture of the vine, and on the art of making wine, have continually solicited the publication of a work which would properly arrange the nomenclature, and the absolute and comparative value of the respective kinds.

The ancients were sensible of the inconveniences of planting a great number of varieties together, especially late kinds with early ones, as affecting the quality of the wine; but they considered, with reason, that it was prudent to plant, in separate divisions, three or four varieties of the best quality and of different colours; because, on the one hand, if one variety failed, the others would probably succeed; and on the other, they might, by mixing them, obtain wine of good character and good keeping, they therefore recommended visiting the vineyards at the period when the grapes are mature, in order to mark such vines as are valueless, and which ought to be dug up in the ensuing winter.

This is the course pursued by the proprietors who are anxious of preserving the celebrity of their wines, a celebrity which vignerons, when they are not partners in the crops, incline to diminish, because in their endeavours to increase the quantity produced, they plant kinds which yield the most bunches and largest fruit, but which generally afford in north-

ern climates quite inferior wines. It is the course last referred to that forms the true cause of the deterioration of vineyards.

Who is there can doubt that the saccharine principle is perfected in proportion to the maturity of the grape, and who therefore can deny the advantage of a selection for northern climates, of those which ripen earliest? The early varieties having a greater chance of arriving at maturity in cold countries than later ones, they should therefore be preferred for such locations. Who can deny, when the expenses of culture are the same for those which yield but little as for those that yield abundantly, that we may easily increase the product of a vineyard by a selection only of the best.

Much difference of opinion exists as to the number of varieties which it is advisable to unite in a vineyard; but all agree on this point, that they should comprise such only as ripen at the same time; and where the vineyard contains many varieties, and the wines are inferior in sweetness or flavour, it is recommended to diminish the number of vines which give it that character, which is deemed far preferable to adding sugar or honey in their composition. For it is well known that some varieties are more saccharine, others more prolific, &c. and that consequently a proportionate mixture of particular kinds is requisite to produce wines of good quality.

The influence of the variety upon the quality of the wine is not of recent discovery, but is stated by Cato, Celsus, and Columella among the Romans, and Olivier de Serres among the moderns, who place a judicious selection in the first rank of considerations demanding attention from those who plant the vine. This influence acts directly or indirectly: directly, when a variety at maturity has or has not by its own nature a quantity of saccharine matter; indirectly, when ripening before or after the diminution of the summer heat, it can acquire or not the quantum of saccharine matter in this or that climate.

From this cause the pineau of Burgundy, and all other true varieties of the pineau, and the morillon hatif de Jura, among the black; the fié-vert of Jura and the melier of Paris, among the white; yield every where good wine—whereas the

meunier, the gamet of Burgundy, the saumoireau or gouais of Aube, produce every where bad wine; and the terret of Gard, the aspirant of Herault, the bouteillant of Bouches-du-Rhone, among the reds; and the broumesque of Aude, and bon-boulenque of Vaucluse, among the whites; which afford good wines in those departments, yield only miserable ones in the vicinity of Paris, for want of sun to acquire suitable maturity.

Unfortunately a great number of vignerons strive to obtain quantity rather than quality; in which case they select, of the reds, the carignan of Herault, the chaliane of Drome, the feldlinger of Bas-Rhin, the merveillat of Vaucluse, the piquepoule of the upper Garonne; and of the whites, the clairette of Vaucluse, the courtanet and the semillon of Lot and Garonne, the lourdaut of Drome, the melon of Côte-d'or, the sauvignon of Jura, all of which are good varieties; or of the reds, the croc-noir of Mayenne, the raisin-rouge of Cantal, the moutardier of Vaucluse; and of the white, the rochelle of Seine-and-Marne, the piquant-paul of Basses-alpes, the saint-pierre of Charente-inferieure, the vicane of the same department; all of which varieties produce weak wines.

The gamet, notwithstanding the inferiority of its wine, has been preferred by the French vignerons, because it yields crops often tenfold, and on account of its forming new clusters when the first are injured by frost, and also because it succeeds in every soil and exposure. It was this variety that by an ordinance of Philip the Bold was torn up in the vineyards of Burgundy in 1395, and which again in 1731, as well as the melon, was destroyed in the vineyards of Franche-Comté, by an order from the parliament of that province, but which, notwithstanding, unfortunately (say French writers) is widely cultivated in the north-east of France.

It seems to be understood that grapes with thin skins afford the best wines, but although that may be generally the case in the north, witness the pineau, I do not think that in the southern districts those with thick skins should be rejected. The difference in the varieties of vines in relation to the climate ought to be taken into serious consideration, especially when

they are transported from the south to the north, for the majority not finding in the latter climate the degree of warmth requisite for maturing their fruit, cannot yield those superior high flavoured wines, for which they are so valued at the south. Proofs of this were afforded at the garden of the Luxembourg, where the vines of the south were remarkable for the vigour of their growth, and the size of their berries and clusters, and also for the small degree of flavour possessed by their juice.

Many varieties of grapes require a more fertile soil than others, from their being of a more vigorous growth, and consequently requiring a greater portion of the nutritive principle to support them. This is more particularly the case in the southern varieties, which, as I have stated, are most vigorous and strong in every respect than those of the north, often producing an immense number of clusters, in some cases weighing several pounds each, with berries an inch in size. The pulsare of Jura may be cited as proof on this point, because it forms the basis of the good red wines of Salins, Arbois, and of Lons-de-Saulnier, and grows better in a clay soil than in any other, producing large berries, and numerous and well filled bunches. This vine, so justly esteemed in the vineyards of Jura, will even succeed on wet clay soils. There are some other considerations in relation to this subject which should not be lost sight of, such as the age to which each variety of grape will remain in a productive state, &c. but these I leave to the reflection and decision of others, and to further experience.

But as all plants indifferently do not flourish in the same soil, a selection should be made of such varieties as are best calculated to succeed in the situation in which they are to be planted. It has been sometimes noticed that when a very vigorous variety is planted too near a feeble one, the former absorbs all the nourishment from the other, and often causes a blight of its blossoms, (coulure) and in some cases even causes its death.

In the vineyard of Epernay there are two sub-varieties of the pineau, one of which is regularly barren when the other is overloaded with fruit.

It has been already stated that it is considered by the best writers an injury to have too many varieties in the same vineyard, for it is a fact as well in the vineyards of the south as in those of the north of France, that those which comprise the least number of varieties produce the best wines, although some persons advocate a contrary doctrine. The sweetness of a grape is not always an indication of a good wine grape, for the chasselas does not make good wine, whereas grapes of a harsh taste make excellent wine. On this subject, however, I will enter more into detail hereafter.

Effect of the age of the vine on the product.

The influence of age, which has been remarked in regard to other fruits to have the effect of rendering them smaller and less numerous, but more sweet, is also extremely powerful as relates to the vine, of which there exist thousands of proofs. It is to this influence that they attribute in Burgundy the superior quality of their finest vineyard of Clos de Vougost, and it is to this also that is to be attributed the well known difference which exists between the wines of Migraine near Auxerre, Closet near Epernay, and the remainder of those vineyards; and indeed, facts of this kind are cited in almost every vine district.

The increase in the vigour and abundance of sap, which is so perceptible in young vineyards formed by scions from these aged vines, together with their consequent increase in produce, proves that the age to which these old vines have endured is attended with no exhaustion of the variety. On the other hand, the fact that the oldest varieties in the Burgundy vineyards are selected as the basis of those of Champagne, and of many vineyards in the department of Haut-Rhin and other districts of France, affords proof conclusive that nature

is competent to the continued fertility of any of her productions, where they have a suitable soil and appropriate culture, to a period *ad infinitum*.

In conclusion, however, it may be remarked, that in southern latitudes, where the climate is sufficiently warm to mature every variety, it is not necessary to make the selection of vines with a particular regard to early maturity, and therefore in such localities the soil may justly be made the primary consideration; but in climates farther to the north, or in other respects inappropriate, the selection of the variety must necessarily occupy the first point for our consideration, and is that on which the entire success depends.

CHAPTER X.

Nomenclature of grapes.

Distinctions of the varieties of the vine have long been obscure and empiric, and there yet exists a multitude of kinds in regard to which no general points of agreement have been established, or terms and characters agreed on as permanent expressions by which they may be universally designated and recognised.

The names given by the Romans to their vines differ so much from those of modern date, that it would be difficult to recognise them, and to realize their identity with those of the present day, and a few instances only exist where they can be distinctly identified, or where the titles have remained unchanged. Virgil has given us the names of some of the kinds most celebrated in his time, and Pliny is quite copious on the subject, but even his list is far from being perfect.

Columella, one of the most intelligent and distinguished Latin natural philosophers, particularizes (*De re rustica*, lib. iii. cap. 2.) fifty-eight varieties of the vine. Crescenzio, the

restorer of Italian agriculture, enumerates forty varieties which were peculiar to the peninsula in the third century.—(*Opulus Ruralium, commodorum*, lib. iv. cap. 3 and 4.) Alonzo de Herrara distinguished important differences in fifteen of the principal Spanish varieties.—(*Agricultura Generalis*, lib. iii. cap. 2.)

Lestini in his travels in Asia gives the names of twenty-one varieties of grapes cultivated at Cyzique, which proves that they knew how to distinguish them in Asia Minor as they do in France.

Tusser, in 1560, mentions, only "white and red," grapes. Parkinson, who was more of a horticulturist, gives in 1629 a list of twenty-three sorts, including the white muscadine, and several others now common in our gardens. Ray, in 1688, enumerates thirteen sorts, as then most in request. Rea, in 1702, gives most of those in Ray's lists, and adds five more kinds, recommending the red, white, and the D'Arbois or royal muscadine, two frontignac varieties, and the blood red, as best suited for the climate of England. Bradley, in 1724, gives a list of forty-nine varieties, as then most esteemed in France, but does not attempt to reconcile their identity with the names in English catalogues. Miller describes fifty-two varieties, and adds the names of about a dozen more.—Speechly enumerates in detail fifty varieties, and gives a list, with short descriptions, of about twenty others, but many of these are synonymous. Forsyth, in his last and much improved edition, describes fifty-five varieties, and gives the names of twenty-eight more, but even with the increased circumspection of that author, he has placed a number under different names which are identically the same fruit. Mr. Loudon in his "descriptive catalogue," enumerates fifty-six varieties, and states that he could have extended the list to triple that number, but unattended with sufficient descriptive particulars to render it of real use. The four last named authors of course refer to grapes cultivated in Britain.

In the last edition of the celebrated work of Duhammel du Monceau, entitled, "Traité des Arbres fruitiers, Art. Vigne,"

we find ninety-one varieties exactly described by name, and partial details touching a number of others.

In the catalogue published by the London Horticultural Society, they enumerate one hundred and fifty-nine varieties or different names, principally those known in British collections, and not including the French wine grapes to any extent; they mention in addition eight varieties of American grapes. That society has as yet favoured us with no descriptive catalogue of their several merits, or with a final arrangement of their synonymes.

On this, therefore, as on numerous other subjects, we must turn to France for a more perfect knowledge of its details. There we find that many years since, the wisest maxims which time and experience had approved, were consolidated in the works of the celebrated Rozier, on the culture of the vine and the art of making wine. The labours of Dussieux and Latapie aided to render the knowledge of the subject more complete, and each contributed his portion to the perfection of that culture which has enriched for centuries the domains of France.

Much, however, as Rozier and Latapie had laboured for the attainment of a perfect knowledge of the different varieties of the grape, it was destined for the celebrated Chaptal, minister of the interior, to form a collection, by the aid of the French government, which should rival all others. This famed chemist, during the consulship in 1801, obtained from every district of France all the known varieties, which were by his order concentrated in the Luxembourg garden, the object being to assemble the various kinds in one spot, in order to ascertain their qualities under the same circumstances, and to compare them at the same time. This labour, so arduous and so interesting, was continued by M. Champagny, his successor, aided by members of the Institute, who examined some thousands of plants, and described five hundred and fifty varieties, one hundred of which were figured by Redouté. From accurate observation of this immense variety of vines, the following conclusions have been definitely formed :

That there is no vineyard of any considerable extent which possesses varieties peculiarly adapted to itself alone, and that some of these varieties could be much more advantageously cultivated in other vineyards than those now found there.

Also, that there are kinds which should be cultivated at Paris, much in preference to those existing there, and they cite among these six varieties of muscat, superior in every point to those common there: one of which, the muscat-noir-du-Jura is so early that it may be eaten the middle of August, and another, le muscat de Hongrie, has berries twice the size of the common red muscat.

It was also ascertained that the order of maturity varied in some degree, but the franc-pineau was found to be one of the most regular in this respect. The morillons of Doubs and of Jura, which ripen there in August, are recommended for northern vineyards in preference to the meunier and mélier, which are a month later.

It was ascertained that under the name of gamet, there were two varieties, one of which produced bad wine, and the other excellent. The only reason for planting the inferior one is on account of its abundant produce, but being much cultivated in Burgundy, it tended to the deterioration of the wine; happily, however, in the course of this investigation, it has been ascertained that there are at least fifty varieties of coloured grapes not known in the environs of Beaune, which are twice as productive, and which from their sweetness and flavour are calculated to yield wine very similar to that of the true pineau.

It was to the distinguished and liberal Professor Bosc, that was confided the duty of comparing and classing the Luxembourg collection. The groundwork of the classification adopted by him was the colour, form, and size of the fruit; the surface, margin, texture, colour, and position of the leaves; and the redness, greenness, or variegation of the footstalks. From a combination of these eleven characteristics he formed one hundred and fifty-six classes, in which he stated might be placed every possible variety of the grape. Even

this highly intelligent professor found great difficulties in this task, arising from the innumerable varieties, possessing slight shades of difference in one point or another, with which the whole territory of France abounds.

In the year 1802, the catalogue of the Luxembourg collection presented two hundred and sixty-seven sorts, arranged under the following heads: No. 1, vines with black oval fruits, thirty-seven sorts; No. 2, black round fruits, ninety-eight sorts; No. 3, white oval fruits, forty-four sorts; No. 4, white round fruits, seventy-three sorts; No. 5, gray or violet oval fruits, five sorts; No. 6, gray or violet round fruits, ten sorts; in all two hundred and sixty-seven varieties, which was afterwards increased to more than double that number.

It must be a subject of great regret to every lover of horticulture, that this noble establishment has been abandoned and broken up by the French government, as it possessed, when fostered by national power, a degree of permanency scarcely to be looked for in individual establishments.

A most elaborate descriptive list of the varieties of the grape is contained in a Spanish work entitled, "Ensayo sobre las variedades de la vid commun, qui vegetan en Andalusia, &c." by D. Simon Roxas Clemente, librarian to the Madrid Botanic Garden. This author founds his distinctions of varieties on the character of the stem, shoots, leaves, flowers, clusters, and berries. He describes one hundred and twenty varieties, comprising them under two sections, the downy and smooth-leaved.

The most extensive catalogue of grapes at present cultivated in any one collection, in France, contains two hundred and seventy-seven varieties, all properly arranged as to colour, form, &c. besides which the same proprietor has many which are not yet so regulated. Notwithstanding, however, all the exertions that have been made, and the studious application of many of the most eminent French horticulturists to this interesting subject, great uncertainty still exists in the nomenclature of many varieties of the grape, and in their observations already made, it was found that often the same kind was called

in different vineyards by six to ten names. This confusion in the nomenclature they regulated as far as their experience permitted, by adopting the title of most general application, and arranging the other names as synonymes.

In my own observations I have frequently found great difficulty in attaining to exactitude in the synonymy, and in some cases, have not yet been able to arrive at satisfactory conclusions. My collection of vines, comprising above four hundred and fifty varieties, of which I will speak more in detail in the sequel of this work, under the head of American Vineyards, promises me great aid in the attainment of so desirable an object, and each year will shed new light on the various points of interest, which must be developed in the culture of such an assemblage, from every vine country.

I now propose giving descriptions of as great a number of varieties of the grape, as can be consistently done at the present period. These descriptions have been revised as far as possible, with scrupulous attention, others, where my own observations did not suffice, have been extracted from the most noted authors of the day; and although I neither claim for them, nor for myself, the possession of infallibility, it can be truly said, that every point has been carefully viewed, with the intent of increasing the general stock of information, on a subject of such great interest to the prospects of our country.

In describing the varieties of the grape, I will commence with the foreign ones, which are all of the one species, *Vitis vinifera*. I will then continue by describing the different varieties, which are natives of our own country, and which are of several distinct species.

The foreign grapes may be properly divided into and placed under distinct heads or groups, as far as possible, such as the Chasselas, Muscat, and other table grapes; and those kinds which are generally considered as wine grapes, and are only occasionally and partially used as table fruit.

CHASSELAS GRAPES.

The grapes of this class, are among the most esteemed table fruits of France, they are all of a round form, but vary in the other characteristics. In regard to the white varieties, there has been much difference of opinion, and I can truly say, I have taken more pains to regulate the synonymæ of the Chasselas grapes, than of all others combined, and with far less satisfaction to myself; for the European publications contain such a heterogeneous mass of contradictions, that no correct decision could be formed from them. I have in this, therefore, as in similar cases, based my conclusions on Duhammel, and one or two more principal works of authority, however much others might differ from them, and have thrown my own experience into the scale.

WHITE, OR GOLDEN CHASSELAS.—PR. CAT. No. 66.

White chasselas.
Golden chasselas.
Chasselas,
Chasselas doré,
Bar-sur-Aube,
Bar-sur-Aube blanc, } Duh.
Chasselas blanc.
Chasselas croquant, Haut-Rhin.
Chasselas dur.
Chasselas doré de Fontainbleau, Beaunier.
D'Arbois, or D'Arboyce,
Royal Muscadine, } Of English authors.

Vitis *acino medio, rotundo, ex albo flavescente.*—DUH.

This variety of the grape is considered the chasselas, *par excellence*, of the French collections, and is more extensively cultivated there than any other variety, which has caused it to receive in different localities, a great diversity of names. The leaves are of medium size, pretty deeply serrated, and bordered with large, but not very acute indentures. The clusters of fruit are generally large and long, and the most part of them shouldered.

The berries are round, varying somewhat in size, the medium ones are about eight lines in diameter, and rather less in height.

The skin is firm, but delicate, of a light green, which at perfect maturity takes a yellowish tint, and on the sun side becomes of an amber colour. The flesh is very melting, white, a little inclining to green, with abundant juice, which is very sweet and agreeable. It has two to four seeds, which are green, marked with gray, the shoots are of a light yellow colour, and stronger than those of many other vines. This is the most esteemed of all the grapes cultivated in the climate of Paris, on account of its excellence and long continuance. Its berries not being too closely set, it ripens the more readily. An exposition facing the dawn, the mid-day, or the setting sun, are found equally suitable to it. At Paris, and its vicinity, it is cultivated in the espalier form, and the best mode is deemed that of training two main branches horizontally in opposite directions, and to cause the fruit to be produced from shoots which spring from these two main branches. This course is adopted at Thomery, where immense quantities of this fruit are raised for the Paris market; and as I shall give the system there pursued in detail, under the head of culture, it is unnecessary to say more here on the subject. Under the culture generally adopted at Thomery, the fruit ripens from the fifteenth to the end of September, but in open culture it is about fifteen days later. In the vicinity of New-York, it is mature early in September, and the clusters of fruit may be preserved until May.

In the department of *Aube*, in France, it is found to make very good wine, but it does not keep long. The wine made from it near Paris, they say is very weak and without body.

It will be seen that I have placed the chasselas croquant of Haut-Rhin, as a synonyme; I however received it thence as a distinct variety, and it is so placed by a horticulturist of great intelligence, but who, I think errs in this case. In adopting it as a synonyme, I have followed the Dic. d'Agriculture, now deemed a standard work. In the new Duhammel, and other standard French authors, the white and the golden chasselas,

are not put down as distinct, and I have therefore considered them as the same.

Most of the French vines which have been sold here, as the white and the golden chasselas, have proved to be identically our common white muscadine, or early white sweet water.

There is a sub-variety of this grape, called *La Blanquette*, or *La Donne*, common in the vineyards of Gironde, Dordogne, and Charente, which is a good eating fruit, but the wine is similar to that made of this. I have seen in the grape houses at Boston, apparently two varieties, varying considerably in the size of the fruit, the larger distinguished by some as the royal muscadine, and by others, considered synonymous with the smaller one. It is possible, that culture and the lessening the number of bunches made the difference; but I am of opinion that they are distinct, and that the larger is the kind just described, and the smaller the early white muscadine; a point which may be decided by close examination of the foliage. Be that as it may, this is one of the very best grapes for forcing in houses to supply our tables, and one of the most easy to succeed with by open culture.

I also met with a variety at Charlestown, (Mass.) called by its possessor golden chasselas, whose joints were much closer than the common sort, and which made less wood; in regard to these differences, there could be no mistake, as the two kinds grew near each other. This, as well as the others, I have under culture in my experimental vineyard.

As this variety makes but little wood, it is therefore difficult to increase; the berries are larger than the common kind, of fine flavour and appearance, and are stated to ripen two weeks before the other. It differs also from the common sort, in having large and small berries on the same cluster, and a gentleman, distinguished for his knowledge on the subject, insists that it is the true golden chasselas of the old French authors, and not at present readily obtained in France. Indeed I have only met with this variety in two gardens in our country.

Some English authors mention the royal muscadine, as producing bunches weighing six or seven pounds; but I must

acknowledge, that I have never seen any near that weight; in fact, if the bunches average one, to one and a quarter pounds, they are considered of fair size, and from one and a half, to two pounds, is considered large; and it takes a very good sized cluster to be of the latter weight.

MORNAIN BLANC, Duh.—Pr. Cat. No. 75.

Meslier, and sometimes *Melier*.
Morna chasselas.
Blanc de Bonnelle.
White Mornain.

Vitis, *uva longiori, acino rufescenti et dulci*.

This grape greatly resembles the white chasselas in the bulk and shape of the bunch and the number of the berries, which are very round, not crowded, and of a pale yellow colour. They become of a russet hue on the sunny side in the same manner, and the pulp is sweet and of pleasant flavour. In fact, it is called the chasselas in some districts of France. It is not subject to the blight or coulure, and is found profitable to plant as a wine grape, particularly in vineyards for white wines. It is also justly considered a fine early table grape, and ripens well even in the north of France.

Duhammel states, that there is a marked difference between it and the chasselas, particularly in the foliage; the leaves are pale green on the surface, whitish and slightly downy beneath, and are divided into five pretty deeply divided lobes, which are very crenate. It ripens in August.

It is my opinion that this grape now exists in different collections in this country, and in a number in France, under the title of the true chasselas, and that it is from this cause so much confusion exists as to a proper arrangement of the synonymes of these varieties.

EARLY WHITE MUSCADINE.—Pr. Cat. No. 3.

White Muscadine,
Amber Muscadine, } Of English authors, &c.

Early sweet water,
August sweet water,
White sweet water, } Of American collections.

Chasselas mou?

Golden chasselas,
Chasselas de Fontainbleau, } Of some collections.

This is a round grape, with a thin skin, and of a delicate flavour; it is a great bearer, and resembles the white chasselas in almost every respect, except that it ripens much earlier, being usually in perfection from the 20th to the end of August in this vicinity, and in Massachusetts in September. It is recommended as particularly suitable for the country, and for the more northern latitudes, where, with attention, it will be sure to yield plentifully and regularly. In this latitude it needs no winter protection, and is one of the most suitable grapes for the purpose of supplying the city markets. I do not notice this grape distinguished in the French descriptions, so as to be assured of a correct application of the synonymes, and unless it be the Mornain or Morna-chasselas last described, it must be synonymous with some other of the varieties of the chasselas, but I venture the supposition that it is the same as the preceding one. Some vines imported and sold among us under the two latter titles among the synonymes, have proved to be identically the same as our white muscadine.

RED CHASSELAS.—Pr. Cat. No. 68.

Chasselas rouge, Duh.

Vitis *acino medio, rotundo, rubello.*—Duh.

This is a sub-variety of the white chasselas: the bunch is commonly of smaller size, composed of berries which are not quite as large, and are slightly tinted with red on one side; those which are not exposed to the sun often remain a light

green. It ripens rather later than the white, being at maturity about the 20th to 25th of September.

WHITE MUSK CHASSELAS.—Pr. Cat. No. 69.

Chasselas musqué, Duh.

Vitis *acinò medio, rotundo, albido, moschato.*—Duh.

The leaf of this is of less size, and of a deeper green than that of the white chasselas; it is also less deeply lobed, but its border is more acutely indented.

The bunch and the berries are nearly of the same size as the white variety, and the latter are rather more closely set and usually contain two seeds, which are small and gray; the skin also much resembles the white in its firmness, but is not crisp and crackling like the Muscat; the colour of the berry is yellowish white, and the pulp is white approaching to green, with abundant juice, which is sweet and musky. It ripens at the end of September, and is considered superior to both the white and red varieties. If it is inferior to the white muscat, it has the advantage of earlier maturity, and will consequently succeed where that will not.

YELLOW CHASSELAS OF THOMERY.—Pr. Cat. No. 71.

Chasselas de Tomery.

This grape is round, and of a yellowish colour when ripe, it is high flavoured and much esteemed as a table fruit, and ripens in September. Although several French authors of celebrity place this distinct from the white chasselas, I will not undertake to say that it is so, until I have more fully tested it.

CHASSELAS GRIS.—Pirolle.

Gray chasselas.

Mr. Pirolle mentions having discovered in the garden of M. Deschiens at Versailles, a superb large fruited variety of the chasselas, round, of equal size, of a fine gray colour, with the

berries at a suitable distance from each other on the clusters, which are well formed. The flavour of the fruit is very agreeable, though not equal to the Chasselas of Thomery.

PURPLE ROYAL CHASSELAS.—Pr. Cat. No. 72.

Chasselas royal.
Chasselas rouge royal.

This is held in esteem as a table grape. The berries are round, of a dark red or purplish hue, and of pleasant flavour. The whole aspect of the plant is peculiar on account of the redness of the foliage, and the tints of the same colour which prevail on other parts of the vine. There are several other varieties which are less known, such as the violet chasselas, the black chasselas, and the chasselas de la madelène with white fruit; of these I am not enabled to give detailed descriptions at the present time.

In some catalogues they enumerate the chasselas blanc précoce de Kienzheim, as a distinct variety; the chasselas-rose I consider to be a synonyme, and therefore omit it; the variegated chasselas, or chasselas panaché, will be found under the title of Aleppo grape.

CIOUTAT.—Pr. Cat. No. 7.

Ciotat, Duh.
Raisin d'Autriche.
Vigne lasciniée.
Parsley-leaved chasselas.
Parsley-leaved muscadine.
White parsley-leaved muscadine.
Austrian grape.
Tardaria grape.

Vitis *folio lasciniato, acino medio, rotundo, albido.*—Duh.

The leaves of this variety are small and palmated, being divided into five principal lobes, each of which is finely and deeply serrated, the edges being also indented; its dissimilarity in foliage makes it easily distinguishable from every

other variety. This has generally been considered so nearly allied to the white chasselas, as not to differ from it in its fruit; it nevertheless is very distinct even in that particular, the bunches, although similar in form, are much smaller and more thinly furnished; the berry not quite as large nor quite as round. The growth is also far less strong and the produce much less abundant; and in fact, it is a weaker plant in all its parts, the size of the leaves being much less. The colour of the fruit, flavour, and time of ripening, are however the same, although some consider the quality rather inferior. Its period of maturity is from the 15th to the 20th of September. There is a variety of the chasselas called Ciotat in some French lists, whose leaves are not divided like the above, and it is not therefore the genuine kind.

RED PARSLEY-LEAVED.

Raisin à feuille d'Ache, Duh.
Persillade de Bordeaux, Rozier.

Vitis *apiifolio, acino medio, rotundo, rubro.*—Rozier.

This is a sub-variety of the preceding differing only from it in the red colour of its berries, and in its foliage more closely resembling that of parsley. It is much more rare than the former, and I have found great difficulty in obtaining it.

WHITE SWEET WATER.—Pr. Cat. No. 4.

Pareyl druyf of the Dutch.

This has large round white berries, much resembling the royal muscadine in appearance and taste, the skin and flesh being delicate and juicy; the berries on the side of the bunch next the sun are often clouded with spots of a russet colour. It is much esteemed, and ripens in September. I consider this as a variety of the chasselas, and I should not be at all surprised if it should be identified with one of the other cultivated varieties, and probably with the white chasselas.

BLACK SWEET WATER.—Pr. Cat. No. 5.

The bunches of this variety are short and closely set, and it has small roundish berries, which are sweet and agreeable, and ripen in September. I do not consider this a variety of the chasselas, but I place it here in order that it may follow the one before described, it being generally placed in connection with it.

FRONTIGNAC, AND OTHER MUSCAT GRAPES.

The grapes of this class are celebrated for their high musk flavour, and are among the most estimable for the table. Some of the varieties are used in particular districts of France for sweet wines, and are also applied to a similar purpose in other countries, as will be pointed out hereafter.

In consequence of a higher value being set on the varieties of the muscat in France, and they being also more rare in the collections than most other kinds, greater inaccuracies, and more deceptions have been experienced in the importation of them, than in those of any other class.

The epithet *Apiana*, given to some grapes, and especially to the muscats, seems to be intended more particularly to designate the varieties which the honey bees attack, as the word appears to be derived from *Apes, or Apium*, bees.

WHITE FRONTIGNAC.—Pr. Cat. No. 77.

Muscat blanc, Duh.
Muscat blanc de Frontignan.
Muscata bianca.

Vitis *apiana acino medio, subrotundo, albido, moschato.*—Duh.

This is a highly esteemed grape for the table, the leaf is not deeply serrated, but it is of a darker green, and more acutely dentated, than that of the white chasselas. The five lobes which divide it are unequal, the middle one being much broader

than the others; the bunch is long, narrow, almost conical, and terminates in a point; it does not swell out at the top like the chasselas, nor have shoulders as that generally does.

The berries, which are about the size of the chasselas, are in general very closely set, so that some persons thin them out in order to advance their maturity; their form is a little elongated, and rather larger at the head than at the extremity.

The skin is firm and crackling; light green, with a slight bloom, and of an amber hue on the sunny side. The pulp is melting, white with a blueish cast, and of a high and exquisite musk flavour. The seeds are small, white, marbled with gray or violet, and ordinarily three or four in number in each berry.

Formerly, a great deal of wine was made from it at Frontignan, Rivesaltes, and Lunel, but at present, very little is made at those places. It has much body, and a decided taste of the fruit, with a fragrant bouquet, and is said to improve by age. That usually sold in our wine stores, I presume, is of a secondary quality.

The Parisians complain that it rarely attains to perfect maturity in their climate, and that it requires the warmth of the south to perfect its exquisite flavour. It is sufficiently ripe in the south of France about the first of August; and it is customary at the city of Aix to make use of it on the sixth of that month, at the metropolitan festival, on the day of the transfiguration, when, after blessing a number of baskets of this fruit, the finest clusters are selected, and the juice expressed into the sacred chalice, after which, the residue are distributed to those who assist in the ceremony.

It is cultivated considerably in the grape houses in the vicinity of Boston, ripening a little later than the chasselas. I do not recollect having there seen it subjected to open culture, but I saw fruit of later maturity under successful management. In the vicinity of New-York, it ripens in September, and I consider it one of the most luscious and desirable grapes with which our tables can be furnished.

RED FRONTIGNAC.—Pr. Cat. No. 78.

Muscat rouge, Duh.

Vitis *Apiana, acino medio, rotundo, rubro, moschato.*—Duh.

The foliage of this grape has the same form as the preceding, but is a little larger, and the leaf, as well as the petiole, becomes early tinted with deep red, approaching to violet; the bunch is elongated in the same manner as the former, though in some cases it is rather shorter, and also less furnished with berries, because the flower being more delicate, is more subject to blight; the skin is firmer than the preceding, of a lively red, almost purple on the sun side; of a paler tint, seemingly marbled with yellow and light red on the side which is shaded; the flesh is firm, of a blueish white, full of juice, of a high and most agreeable musk flavour; and most of the berries have but one seed.

Although this grape has not quite as fine a taste as the white, it is, nevertheless, highly esteemed as a table fruit; and besides being very good, has the merit of attaining to an earlier maturity, which in this latitude, is about the 20th of September.

BLUE, or VIOLET FRONTIGNAC.—Pr. Cat. No. 80.

Muscat violet, Duh.
Madère.

Vitis *Apiana, acino magno, oblongo, violaceo, moschato.*—Duh.

The foliage of this variety differs but little from that of the white, the bunch is also nearly of the same form, composed of berries somewhat elongated, having a hard skin, of a pretty dark violet colour, covered with a bloom.—The pulp is a little greenish, replete with very pleasant juice, of a musk flavour, although perhaps less so than in the two preceding varieties. Each berry contains two to three seeds, and the fruit is at maturity in September.

EARLY VIOLET MUSCAT.

Muscat violet précoce.

Under this title I have received from the shore of the Rhine, a grape, described as particularly valuable, by the eminent horticulturist from whom it was received; for, in addition to the fine properties it possesses, in common with other muscat grapes, it has the advantage of ripening so much earlier, that it matures its fruit in much more northern latitudes than they are found to succeed in.

BLACK, OR PURPLE FRONTIGNAC.—PR. CAT. No. 79.

Muscat noir, Duh.
Muscat negré of Provence.
Black Constantia.

Vitis *Apiana, acino medio, subrotundo, nigricante, moschato.*—DUH.

The leaves of this are much less serrated than those of the other varieties of muscat, and they are sometimes so little lobed as to appear almost entire; the berries are round, and not so large as the blue variety; the skin is black, or of a very dark violet colour, covered with a bloom; the pulp has a light tint of red under the skin, and is full of juice, which is pleasant, sweet, and musky. Each berry generally contains four small pointed seeds, that are reddish on one side. This has long been considered as being the grape from which Constantia wine is made; it is not equal to the white frontignac, but it ripens much better in northern climates, yields a good crop, and is at maturity in September. I saw under cultivation in a grape-house at Boston, a variety which had been obtained direct from the Cape by the intelligent proprietor, and was considered by him quite distinct from this. In the London Horticultural Society's catalogue the black Constantia is not placed as a synonyme, which indicates that some doubt existed on that point, which they will doubtless solve by after investigation,

GRIZZLY FRONTIGNAC.—Pr. Cat. No. 81.

Muscat gris.

I describe this grape separately, merely because some English authors have done so, and in order to elicit inquiry, and to settle the point of accuracy hereafter. Duhammel does not enumerate such a variety, neither is it named by the standard French authors, but one that does mention it omits the *muscat rouge.* Is it not, therefore, reasonable to consider this synonymous with the red variety, although Miller, Forsyth, Speechly, and half a score of other English authors continue to enumerate it? Speechly describes it thus: berries somewhat larger than the white frontignac, round, colour brown and red intermixed with yellow; which description seems to apply to the red variety when ripened in a shady situation. A very intelligent horticulturist at Boston told me he had vainly endeavoured to distinguish any difference. It is at maturity in September.

WHITE MUSCAT OF ALEXANDRIA.—Pr. Cat. No. 82.

Muscat d'Alexandrie, Duh.
Muscat d'Alexandrie blanc.
Passe-longue musquée.
Passe musquée.
Passe musquée blanc.
Muscat d'Espagne.
Panse musquée blanc.
Muscat de Panse of Provence.
Alexandrian frontignac.
White muscat of Jerusalem.

Vitis *Apiana, acino maximo, ovato, è viridi flavescente, moschato Alexandrina.*—Duh.

The leaves of this variety are more deeply serrated than those of other muscats, and they are bordered with smaller and more pointed indentures, the bunch is very large, very

long and irregular, composed of fine large oval berries, which are rather larger at the summit than the base, and about an inch in length; they hang loosely on the cluster, and present a beautiful appearance. The skin is firm, of a light green on the shade side, and of a slight amber hue on the sunny side, when at complete maturity. The flesh is firm and crisp, replete with musky and perfumed juice, which is excellent when the fruit is perfectly ripe; each berry contains one or two very small seeds. Duhammel puts the Malaga as a synonyme, but the grape best known to us by the latter name, is widely different: the same author puts the Muscat d'Espagne as synonymous.

This grape seldom ripens in the latitude of Paris, unless in very hot seasons, and only when cultivated as an espalier in a southern exposure; but in southern France it is deemed among the most exquisite fruits. It has the advantages of keeping a long time, and of making excellent preserves.

I scarcely think we can calculate with any certainty on crops of this grape in the vicinity of New-York and north of it by open culture, unless the situations selected are peculiarly favourable, as the season is scarcely long enough. Some distance to the south, however, it will be sure to succeed. It is one of the favourite varieties planted in grape houses in England, and also in the vicinity of Boston, where I have met with it in high perfection.

VIOLET MUSCAT OF ALEXANDRIA.—Pr. Cat. No. 84.

Muscat d'Alexandrie violet.

Although a grape is mentioned by some authors under this name, I do not find it described by any that has come within my notice; I however have a grape to which I think this title will justly apply; the fruit is a long oval of rather large size, violet colour, and very high musk flavour, and powdered with a fine bloom. It is very delicious, matures its fruit perfectly in my garden during the month of September, and I consider it one of the best table grapes.

BLACK MUSCAT OF ALEXANDRIA.—Pr. Cat. No. 83.

Red Muscat of Alexandria.
Red Muscat of Jerusalem ?
New muscat of Jerusalem, Forsyth.
Muscat noir d'Alexandrie, *Malaga du Lot ?* } Of French catalogues.
Black Malaga ? *Black muscadel ?* } Of English authors.

This grape is described by Forsyth as resembling the white except in its colour. It is not enumerated by Duhammel or Chaptal under any title by which it can be readily recognised, but I have doubtingly put down the Malaga-du-Lot of some French authors and of the Luxembourg collection as a synonyme, and I doubt not all the English titles quoted apply to the same fruit, although they are described as distinct.

The bunches ripen in October, and it is therefore too late a kind for this latitude, but will succeed south of the Potomac. There is a variety of grape called in some French lists Muscatelle-du-Lot, which may possibly be the same as this. It is stated in Miller that the black muscadel contains berries of different sizes on the same bunch; some of the berries are large and long, and they are somewhat flat and compressed at the ends. It is also there mentioned that the leaves change to a beautiful scarlet in autumn.

WHITE MUSCAT OF LUNEL.—Pr. Cat. No. 86.

Muscat de Lunel.
Lunel.

The vicinity of Lunel formerly produced a considerable quantity of muscat wine, and the celebrity of this grape is doubtless attributable to that circumstance. It is not enumerated by Duhummel and other distinguished authors as specifically distinct from the other varieties, and I therefore doubt its being other than a synonyme. I received the vines now growing in my vineyard from the vicinity of Lunel, and shall be

speedily able to decide the point myself. English authors describe it as distinct, and state that it has large oval berries of an amber colour sometimes clouded with russet, with delicate flesh, and full of vinous juice, that it bears well, is highly esteemed, and forms pretty large bunches.

MUSCAT D'ESPAGNE.

This variety, which Duhammel puts down as a synonyme of the white muscat of Alexandria, is enumerated in some French lists as a distinct variety. I have it under culture, but I have not yet sufficiently tested its merits to give an opinion in regard to them, nor to prove it to be other than a synonyme. In addition to those already described, the following varieties are enumerated in French publications—Muscat hatif, muscat blanc-varieté, muscat gris hatif, and muscat panaché, which are considered as distinct varieties, and which I have consequently imported, and now have growing in my vineyard.

WHITE MALAGA.—Pr. Cat. No. 85.

White Muscadel?

The variety which is largely imported in jars under this title, is different from the white muscat of Alexandria, particularly in flavour. The berries are very large and oval, skin thick, flesh firm, and very pleasantly flavoured; the bunches grow very large. It does not ripen until October in this latitude, and is therefore not suitable for open culture except further south.

I however saw this grape growing under open culture the past season in the garden of Zebedee Cook, Esq. near Boston, with a far greater appearance of attaining to perfect maturity than I ever before witnessed in so northern a latitude, and I am told one bunch actually matured its fruit. This success was no doubt attributable to the excellent management and great intelligence which were developed in the culture of the different representatives of the horticultural family which partook of his fostering care. In his garden I saw also a round-ber-

ried variety he had received from Malaga with the foregoing.

RED MALAGA.

Red Mascadel.—Pr. Cat. No. 90.
Red Smyrna.

Of this variety we have latterly had considerable importations from the Mediterranean in a fresh state, packed in jars. The vines are also cultivated in our collections, but in this vicinity the fruit can very rarely attain to maturity, as the period of ripening is not until October; the berries are exceedingly large, of a long oval form, the skin thick, flesh solid, the taste and flavour sweet and pleasant; the foliage is particularly marked, with reddish veins and tints. This is considered by some persons to be the same as the red muscat of Alexandria, but as it has not a high musk flavour, I doubt the accuracy of that supposition. I think it is probably, however, the same as the red muscadel and raisin grapes of the English authors, and the red Smyrna grape described by them is also no doubt the same fruit.

Speechly says the berries of the red muscadel are large, oval, and of a beautiful red colour, and the skin thick and flesh hard, similar to the raisin grape. He also states that the bunches often weigh six or seven pounds, and are most elegantly formed of berries of an equal size, and that the leaves change in autumn to beautiful red and green shades. This description agrees with my own observations, except that I have not seen bunches weighing over three to three and a half pounds.

MUSCADEL.

Under this head are described by English authors three distinct varieties, the white, red, and black. I consequently imported them, and have them now under culture in my collection; but believing that they will prove to be synonymous with

others described, I have withheld distinct descriptions of them, and have placed them as synonymes where I think they belong; the descriptions given of them by English authors are exceedingly indefinite.

WHITE RAISIN GRAPE.—Langley Pom.

This, and the red raisin grape of English authors, doubtless refer to the varieties of the Malaga grape used in making raisins, and are very probably synonymous with two of the varieties under the preceding head; for to all reasonable intents, the titles of Malaga, Muscadel, and Raisin grape, refer to the same fruit, and probably are so; the black raisin grape appears, however, to refer to a different variety.

AUGIBERT NOIR.

Black raisin, Loudon.

Mr. Loudon places the black raisin grape described by Forsyth, as synonymous with the augibert noir, and as that author is celebrated for the accuracy of his descriptions, it may justly be deemed to be correct. The augibert noir I have in my collection, it is a dark coloured oval grape.

Mr. L. mentions that it is large and has a thick skin.—Forsyth states, that the black raisin grape has large black oval berries, and that the flesh is firm—and Speechly gives it the same characteristics as the two authors previously referred to, and adds, that it forms long handsome bunches. I do not consider it a grape calculated to succeed north of the Potomac.

TABLE GRAPES OF DIFFERENT COUNTRIES.

The following are celebrated table grapes cultivated in England, France, our own country, and elsewhere, the qualities of which are so various, that I have not been able to form them into distinct classes. I have, however, in many cases, placed those in succession whose characters most nearly assimilate.

BLACK HAMBURGH.—Pr. Cat. No. 13.

Franc-kental, Duh.
Frankenthaler of the Dutch.
Hampton Court vine.
Esperione of some Boston collections.
Warner's black Hamburgh.
Frankendale.
Salisbury violet.

Vitis *uvâ mediâ; acinis avoïdes, saturatè violaceis, dulcibus.*—Duh.

It is this grape which is stated by English authors to have produced at Hampton Court, on a single vine, more than a ton weight of grapes in one season, as mentioned at page 26. The leaves are almost smooth on the under side, or very slightly pubescent; they are pretty deeply five lobed, with the border unequally indented. The bunches are six to nine inches in length, regularly shouldered, and descending to a point, so as to form an elongated triangle; there is a greater regularity throughout the bunches generally, than in those of most other grapes, and they commonly average in weight from one to one and a half pounds, though many are met with weighing two pounds. I have never seen bunches weighing four pounds, as some books state, although I have viewed them under every favourable circumstance; and I wish those who are unacquainted with the subject to understand that it takes a large sized cluster of grapes to weigh two pounds.—The berries are large, oval, somewhat rounded, of a deep violet colour approaching to black; they are sweet, of a delicate

consistence, and of very pleasant flavour; the only fault is, that the skin is rather thick.

The vine is remarkable for the strength of its shoots, which often produce several bunches the second year from the layer or cutting, and can always be made to do so the third year without injury. It is a regular and great bearer, and held in high esteem for that and its other qualities. In England it is considered one of the most uncertain to ripen in open culture, but in the vicinity of New-York it succeeds perfectly in that manner, and matures its fruit towards the end of September.

At Boston it is cultivated on garden trellices, and ripens well in warm seasons and in favourable situations; it is also there cultivated to a very great extent in grape-houses of a cheap construction.

I am not certain that the true Esperione is a synonyme of this grape, but vines received from England under that name by different persons about twelve years ago, and which came from different places, are now in full bearing, and are decidedly the same. It may be that as the distinctions were less understood at former periods than at the present time, errors were then committed in the cases referred to, and that the real Esperione is different.

RED HAMBURGH.—Pr. Cat. No. 15.

Gibraltar.

The fruit of this is rather oval, of a dark red colour, and when fully ripe, some of it will become quite black. It has a rich vinous flavour, and is ripe about the same period as the black. It is an excellent grape, and ripens well in open culture in this latitude, maturing its fruit by the end of September.

WHITE HAMBURGH.—Pr. Cat. No. 16.

Portugal.
Lisbon.
Clapiers?

This grape, which I have eaten the present season in

great perfection, has oval berries of very large size, with a thick skin: they resemble the Malaga in taste, and in form also, but are considerably smaller. The clusters are shouldered, and formed of small divisions or *grappillons*, the berries are not very closely set, having distance sufficient to mature readily. A bunch which I saw the present season in the grape-house of the Hon. John Lowell, near Boston, weighed above three pounds, and was the largest and most beautiful cluster of the kind I have ever seen; other bunches weighed generally rather less than two pounds.

This vine will ripen its fruit with skilful management under open culture in this vicinity. There appears to be some doubt as to the last synonyme.

PURPLE HAMBURGH.—Pr. Cat. No. 14.

I do not find this described as distinct by Speechly or Forsyth, but in the London Horticultural Society's catalogue it is placed separately. A friend of mine who has a number of the vines under culture in the same garden with the black variety, considers them as different, although their general characters bear much affinity: there is only a slight variation in the colour, and the clusters are not so long.

ESPERIONE.—Pr. Cat. No. 12.

Turner's early black.
Hardy blue Windsor.

In the new edition of Forsyth the following description of this grape is given: it has large shouldered bunches; the berries vary much in shape, sometimes round, frequently flat, rotund, and indented at the apex, with the remains of the stile—there is often a groove on one or both sides, decreasing from the head downward; skin of a deep purple colour, inclining to black, and thickly covered with bloom; the flesh adheres to the skin. It has a pleasant taste, but is not high flavoured or rich. The vine is very hardy, a great bearer, and ripens its fruit with the sweet water and muscadine.

I have already remarked that some vines sent from England for this kind proved to be the black hamburgh. I have some vines however in bearing, which I received two years since from an undoubted source, and I shall soon be able to determine whether they are in reality as distinct as the description.

OEIL DE TOURD.—Pr. Cat. No. 53.

Chalosse.
Prunelas.
Dove's eye.

This is not considered in France as an esteemed table fruit, there being so many superior to it; the berries are white and of an oval form. It has been cultivated in several gardens around New-York as an eating grape. Among the French it is better known by the second title, but in this vicinity is more generally called by the first.

STRIPED ALEPPO.—Pr. Cat. No. 7.

Morillon panaché.
Chasselas panaché, Duh.
Raisin suisse.
Raisin d'Alep.
Pineau noirin.
Swiss.
Striped morillon.
Variegated chasselas.
Striped muscadine.

Vitis *acino rotundo, medio, bipartito nigro, bipartito albido.*—Rozier.

This grape was brought to France during the crusades, and is one among the many proofs which exist that the age of a variety is no preventive to its vigour and fertility when it enjoys a suitable climate and soil, and is under proper culture. I have not adopted the title of chasselas, because I have found those I have cultivated to be decidedly of the family of the morillon, having the same form, size, and taste, and ripening at the same period.

The leaves are dark green, divided into lobes of consider-

able depth, and are bordered by large and unequal indentures, and about the commencement of autumn their upper surface is spotted with red and green, resembling Aleppo lettuce, and is also very slightly pubescent; the under side is downy, which gives it rather a whitish appearance. The clusters are from four to six inches in length, formed of rounded berries of medium size, which have generally but one seed.

On the same plant are produced white fruit, black or dark violet fruit, and fruit of two colours, some of the berries being half of each colour, and others striped with greater or less divisions of each. The variations are often found on the same cluster, some bunches will be entirely black, others with a few white berries, and other clusters will be almost entirely white, having only a few dark violet or striped berries intermixed.—Duhamel remarks, that the violet coloured bunches are more sweet and pleasant, and possess more of a vinous flavour than the white ones. I have not thought of noticing when eating the fruit if this was the fact, but if so it may be readily accounted for by the greater action of the sun on the coloured berries, maturing them more perfectly. This grape is considered worthy of culture as an object of curiosity; it is one of the most hardy varieties, and ripens its fruit at New-York the end of August or beginning of September, and would without doubt mature its fruit at Boston, and probably for some distance north of it. It is a good bearer, and the wine made from it is good, keeps well, and imparts strength and durability to those with which it is mixed, which is another proof that it rightly belongs to the morillon or pineau class, and not to the chasselas.

WHITE ST. PETER'S.—Pr. Cat. No. 18.

St. Pierre blanc.
Moscon.

This is a large and very handsome fruit, the bunches are large and shouldered; the berries of oval form, sufficiently distant on the cluster to ripen well, and of excellent quality.

It has been until latterly very little known, but is coming much into repute in the vicinity of Paris, and the north of France, as it ripens its fruit well there. I have had crops from it for three years in my vineyard, and they arrived at perfect maturity in every instance; and I consider it capable of being cultivated with the same ease as the common white chasselas, and that it will ripen as soon.

BLACK ST. PETER'S.—Pr. Cat. No. 17.

Black grape from Palestine.

This has a large and rather oval berry with a thin skin, of a deep black colour when ripe; the bunches are large, and the flesh juicy; the leaves are very much divided and the fruit ripens at the end of September or beginning of October. The berries are subject to crack, for which reason it is not deemed suitable for forcing in houses.

WEST'S ST. PETER.—Pr. Cat. No. 19.

Black Lombardy.

This has large black berries of excellent flavour; the bunches are of fine appearance, and the grapes are highly esteemed.

BLACK PRINCE.—Pr. Cat. No. 20.

This is an excellent grape, of a blackish purple colour, covered with a bloom; the berries are moderately large and of oval form; the skin is thick and rather harsh; the pulp white and of pleasant taste, and the juice sweet and of good flavour. The bunches grow large, sometimes weighing a pound and a half; the fruit ripens well, and the vine is a good bearer.

It is considered an excellent grape for rearing in houses, and also succeeds well in this latitude by open culture.

BLACK MOROCCO.—Pr. Cat. No. 28.

Raisin de Maroc, Duh.
Maroc, or Gros Maroc.
Raisin Turc.
Raisin d'Afrique.
Maroquin,
Maroqyin d'Espagne, } Erroneously.
Barbarous.
Morocco.
Le Cœur.
Ansley's large oval black.

Vitis *acino maximo, ovato, saturatè, violaceo.*—Duh.

The leaf of this vine is large, deeply serrated, bordered with large and acute teeth supported by a large and long petiole. The bunch is of great size, composed of large berries somewhat oval, and rather more swollen at the summit than at the base. The skin is hard and thick, of a deep violet with a fine bloom; the pulp is of a bluish white, full of agreeable and high-flavoured juice when the fruit is perfectly ripe; each berry contains two large seeds.

I find I have two varieties, the one received from France being a long oval, whereas the one obtained from England partakes very little of that form. This grape seldom ripens perfectly in the latitude of Paris, and is not eaten in perfection except in the south of that country; it can, therefore, scarcely be expected to succeed regularly in this vicinity by open culture, but it ripened with me the present year about the 1st of October.

SYRIAN.—Pr. Cat. No. 40.

Jews.
Syrie.

This is the variety referred to at page 30, as having produced in England, a bunch weighing 19½ pounds. It is also supposed by many, to be the species found by the spies sent by

the Israelites, a bunch of which they cut down at the brook of Eshcol, in the southern part of Canaan, and bore on their return between two, upon a staff.—*Numbers, Chap.* xiii.

Be this as it may, it certainly has produced the most enormous clusters that the gardens of Europe can boast, and has been nearly equalled only by the *Gros Guillaume*, which being black, would form with this an admirable spectacle, when growing in the same house or the same vineyard.

The berries of the syrian are white, large, and oval, with a thick skin, and solid flesh—the bunches handsomely formed, and of enormous size, making a noble appearance.

Although it is generally considered a coarse fruit, it is not more so than the Malaga, which we so often import in jars; and it may be kept in perfection on the vine for many months, or be preserved fresh in jars, in the same manner as the grapes we import. The berries sometimes require thinning, in order to advance their maturity; that is, in climates where the seasons are not of sufficient length, but in the southern states no attention of that kind is required.

It is a prolific bearer; but it may be taken as a general standard, that the size of a bunch lessens the number in due proportion, and that, be the clusters as large as they may, there will not be on a vine of a given size, a greater weight of fruit, than on one of another kind of equal size, of an equally thrifty variety.

GRAND GUILLAUME.—Pr. Cat. No. 255.

Gros Guillaume,
Rognon de Coq, of Provence, } Duh.

Vitis *uvâ maximâ et longissima, acinis majoribus, &c.*

This variety is, according to Garidel, one of the most interesting, and produces bunches which weigh from twelve to fifteen pounds.—Mr. Michel states, that the clusters are so large, and the berries so nnmerous, that they can seldom be found with the whole perfectly ripe at the same time. When the berries begin to change colour and ripen, the thinness of the

skin allows them to be subjected to the attacks of bees and other insects, which injure the fruit, and thereby render it liable to decay and fall off. In other respects, this grape is not calculated to keep long, and the juice although pleasant, is not high flavoured.

Some cultivators and amateurs have essayed to preserve the bunches in brandy, and have completely succeeded. It is often called by the name given as the last synonyme. This vine was cultivated in the Luxembourg royal garden, having been obtained from Aix. The shoots of those growing in my vineyard, surpass many other kinds in size and vigour.

WHITE SEEDLESS CORINTH.—Pr. Cat. No. 24.

Corinthe blanc, Duh.
Corinthe sans pepins.
Kishmishi.
Uva passa bianca.
Corinthian vine.
White Kismish, Trans. Lond. Hort. Soc.
Yellow stoneless.

Vitis *acino minimo, rotundo, albido, sine nucleis, Corinthia.*—Duh.

The leaves of this vine are large five lobed, the three centre ones being large, and the lateral ones less distinct, the edges are also irregularly indented. The upper surface is green, and the under side so very downy, that it appears almost white. The bunches are four to five inches long, and are composed of numerous berries, of very small size, closely set, and covered with a bloom, and of the same colour as the white chasselas.

The flesh is very melting, and full of sweet and very pleasant juice, and the grapes ripen early in September.

The berries have no seeds, nevertheless, there are some found, (but very rarely,) containing seeds; in such case, the berries containing them, grow four or five times as large as the others on the same bunch; which goes to prove, that if all the berries were fertilized, the bunches would acquire a much larger size. In fact, the vine is large in all its parts, except in its miniature

fruit, which is truly of that character, when compared with the other parts of the plant. The trunk or body becomes, perhaps, the largest of all the varieties of vines. It advances in size and extent doubly what other kinds do in the same period. Duhamel mentions the body of a vine of twenty-five years of age, which was thirty-three inches in circumference, at the height of a man's head. This speedy development in its dimensions, is the result, without doubt, of the little exhaustion occasioned in the production of abortive fruit of not more than a quarter of the natural size. There are several other varieties whose merits are yet little known, but the most of which are in my vineyard, among them is the blue corinth, or *Corinthe violet*, whose fruit is also seedless and larger than the white; it is very subject to bleed, and the fruit rots so rapidly in the north-eastern departments of France, that they have given it the title of *Passe*, or *Passerille*. There is also the *Red corinth*, which is much liked, and the *Gros corinthe* with seeds, besides which, there is a large seedless variety, said to bear more resemblance to the chasselas grape, and to be a subvariety of it with smaller fruit, possessing less sweetness.

I have not put down the Smyrna raisin as a synonyme, in accordance with some English authors, because the two grapes are perfectly distinct, and in truth, it would require a grape of twice the size of this to make a Smyrna raisin; the latter has also the semblance of seeds, whereas the white corinth has not in general a vestige of the kind.

BLACK CORINTH.

Currant grape.
Zante.
Black Ascalon.

I am not aware that this differs from the Corinthe violet already referred to. It is described as having a small roundish berry, generally without a stone, of a deep black colour, and closely set on small short bunches. The juice is sugary, and

it ripens at the end of September, or beginning of October, but will not last long.

WHITE CORNICHON.—Pr. Cat. No. 22.

Cornichon blanc, Duh.
Crochu of Provence.
Pisutelli of Marseilles.
Cucumber grape.
Finger grape.
White girkin.

Vitis *acino longissimo, cucumerformi, albido.*—Duh.

The leaf of this is large, and so little serrated that it appears almost entire, but it is bordered with large and pointed teeth; the bunch does not contain a great many berries, and these are fourteen to nineteen lines in length, and but six lines in diameter in their largest part, which is rather nearer the summit than the base. These berries are of a very peculiar form; they are curved like a cucumber, diminishing in size towards the peduncle and much more at the other extremity, without however terminating in an acute point. The skin is hard, covered with a bloom, and is of a clear green or whitish hue, which becomes a little yellow at perfect maturity. In each berry are one or two seeds terminated by a point.

The singular form of this grape, and its pleasant taste would cause it to be much sought for if it ripened better in the colder latitudes; but in that of Paris it only ripens occasionally when very hot seasons occur, and where the situation is very favourable. For the same reason it sometimes fails in this vicinity, and it is only further south that it can be cultivated with full success. A red or violet variety is mentioned by Duhamel, but I presume he referred to the following, which until latterly was but little known.

VIOLET CORNICHON.—Pr. Cat. No. 23.

Cornichon violet.

Vitis *acino longissimo, cucumerformi, violaceo, &c.*

The leaves are very large and but slightly lobed; the berries are long, largest at the base, and somewhat curved at the apex—their length is in proportion to their average breadth, as two and a half or three and a half to one. When quite ripe they are in general entirely blue, but in climates where they cannot perfect their maturity, they often remain green at the base. The wine is harsh, and it needs a mixture with sweeter grapes to render it agreeable. It ripens later than the preceding; the remarks, however, applied to that in respect to climate will also apply to this.

Forsyth speaks of a variety with black berries, but there is no such one in the French lists that have met my eye, or in those of this country, nor do other English standard works of late date enumerate it.

It is said to be called in France Dedo-de-dame, and I notice a grape under this title in the catalogue of the London Horticultural Society, but they omit the Cornishon violet—may they not therefore be the same?

VERJUS.—Duh.

Bourdelas.
Bordelais.
Agyras.
Grey.
Gregoir.
White verjus.

Vitis *acino majore, ovato, è viridi flavescente, &c.*—Duh.

The leaf of this grape is very large and slightly serrated. The bunch is also very large, formed of many wings or divisions; the berries are oval, rather larger at the apex than at the base, pretty closely set; the skin is thick and very firm,

with a slight bloom, and of a light green acquiring a tint of yellow when the fruit is very ripe; the flesh is also firm, white approaching to green, with abundant juice. Each berry usually contains four seeds of moderate size.

This grape is cultivated in some departments only for using in an immature state for different domestic purposes. Before it acquires full size, the verjuice is expressed from it of which such great use is made in the kitchen for various sauces and seasonings. Excellent preserves and marmalade, and a pleasant syrup are also made from it. When it has even attained perfect maturity, which seldom happens in the latitude of Paris or in that of New-York, it is not very pleasant for eating, because its taste is rather insipid and not high flavoured. The wood is the strongest and most vigorous of all grapes; it grows with such force and rapidity, that in order to have a great deal of fruit the system of long pruning must be pursued.

Besides the foregoing, there is a black variety much cultivated in the south of France, (see catalogue No. 24,) and a red variety is also described, but this last is, however, not held in as much esteem as the others. In the vicinity of Bordeaux it comes to perfect maturity, and it is considered of value in the vineyards to mingle with other grapes. The verjus has matured its fruit with me the present season ripening the first of October.

VERDAL—VERDAOU—Duh.—Pr. Cat. No. 54.

Aspiran of Languedoc.

Vitis *pergulana, uvâ perampla, acino oblongo.*

This is one of the sweetest and finest grapes for the table. The bunches are beautiful, and formed of very large white berries, which have a thin skin, but are firm and contain but one or two small seeds. Being from Languedoc, it does not succeed in the latitude of Paris, and will not in this vicinity unless in a highly favourable situation, and a very hot season. It would, however, be suitable to localities south of the Poto-

mac. There are two varieties of grape known under this name.

CLARETTE BLANCHE.—Pr. Cat. No. 284.

Clairette, Duh.
Clareto of Provence.

Vitis *fertilissima, uvâ serotinâ, acinis minutis, subflavis, &c.*

This variety is very productive; the clusters ripen late, and remain perfect a long time; the berries are of medium size, a little pointed, of a whitish yellow, and are very sweet tasted. It is better to keep for eating than to use for making wine; there is a red variety which does not appear to differ very materially except in the colour.

OLIVETTE BLANCHE, Duh.—Pr. Cat. No. 295.

Vitis *acinis albis, acuminatis.*

This grape is cultivated in the vineyards of Provence, and as it keeps well, they collect them and hang them up, and they are preserved in that manner until the beginning of summer. The fruit is white and of an oval form.

OLIVETTE NOIRE, Duh.—Pr. Cat. No 259.

Vitis *uvâ serotinâ, acinis nigris, ovatis, acuminatis, &c.*

The clusters of this grape are very large and long, and composed of berries hanging rather loosely on long pedunclcs; they are large, olive form, and very hard, although the skin is delicate; the flavour is excellent, and it is equally good for the table and for making wine, but is not much used for the latter purpose.

RAISIN DE POCHE, Duh.

Très dur, ou de Poche.—Pr. Cat. No. 361.

Vitis *uvâ amplâ, acino ovato, violaceo, durissimo.*—Duh.

The leaves are not very deeply lobed, but are bordered with

large and irregular indentures. The bunch is eight to ten inches long, composed of oval berries of pretty large size, very firm, and of a clear violet colour, which are not easily mashed, whence they have derived the name they bear, which means in English, *pocket-grape.*

RAISIN PERLE.—Duh.

Rognon de Coq.
Barlantin.
Pendoulaou,
Rin de Panseo, } of Provence.

Vitis *pergulana uvâ perampla, &c.*

The leaves are dentated and divided into three lobes, which are almost formed into five by the division of the two lateral lobes into smaller ones; the berries are of quite unequal sizes, but mostly not large; they are oval, of a pale pearly green, and full of sweet rich juice, and are borne on separate very long peduncles; the bunches are long and loose, being formed of several shoulders and small divisions. This variety is cultivated to a great extent in many vineyards, the fruit when fully ripe has a slight musk flavour, and the wine made from it whether white, pale, or red, is generous and excellent. It also makes very rich and fragrant marmalade.

It thrives best in a strong loam, calcareous or marly, and situated on a declivity. Humidity is very injurious to it at the period of flowering, and its effect is to cause blight. In climates too far north for it, it is much injured by spring and fall frosts, and does not readily recover from their effects. Being a vigorous variety, it does not require frequent renewal by provignage or layering, and it may be subjected to long pruning without fear of exhausting the plant.

ROUDEILLAT.—Duh.

Vitis *acino rotundo, albo, flavescenti, dulci et duro.*

This variety is very common in all the vineyards of Provence, nevertheless it is seldom used for making wine, it being

generally preferred for eating; the skin is so delicate that it does not keep long. Garidel places it among the most delicate table grapes.

PLANT DE LANGUEDOC, Duh.—Pr. Cat. No. 344.

Vitis *maximâ; uvâ perampla acinis albido viridis, &c.*

This vine produces large bunches, the fruit is of good size, of a round form, a greenish white colour, and agreeable flavour; it requires to be gathered as soon as it is ripe, and if to be used for *passerilles*, it should not be collected until after the sun has caused the evaporation of the humidity, and it is well to twist the stem some days before the bunches are gathered.

PLANT DE SALES.—Pr. Cat. No. 302.

Le Salé, Duh.

Vitis *fertillissima, uvâ perampla, acinis fulvis, oblongis, &c.*

This grape is cultivated less for the purpose of wine than for being preserved. The cluster presents an amber hue, the berries are small, oblong, and marked with small reddish spots. There is also a white variety; both are cultivated at Marseilles, but the fruit which bears the same name at Aix, and which is spoken of by Garidel, is different from both I have here mentioned.

LE PICOTÉ, Duh.

Vitis *uvâ amplâ, acinis albidis et fulvis, magnis, oblongis, &c.*

The joints of the shoots of this variety are very near to each other. The bunches are formed of whitish berries, which are large and oblong, and have very sweet juice; the skin is firm, and dotted over with reddish points. This fruit is more esteemed for the table than for wine.

LE POOUMESTRÉ.—Duh.

Vitis *mutabilis, pergulana, fertillissima, &c.*

The fruit produced by this vine does not ripen until towards the end of December. The berries change from white to red

and to black, when they have attained to their maturity. This variety often blossoms, and produces fruit twice the same year. It is not unfrequent in southern climates, to gather and eat the fruit from it in May, when the second crop is not fit to gather until December.

BARLANTIN, Duh.

Danugo of Provence.

Vitis *pergulana, uvâ maximâ, perampla et serotina, &c.*

The fruit of this variety keeps a long time and very seldom rots; the berries are as large as the damask plum. It ripens about the end of September; is round, and of a dark violet colour, has a thick skin and pleasant flavour.

ESPAGNIN, Duh.

Marroquin, or Espagnin.—Pr. Cat. No. 206.

Vitis *duracina, acino magno, nigro, rotundo, &c.*

This variety is cultivated in Provence, its shoots grow to a less height than most other kinds, and its fruit, which is large, round, and black, ripens about the end of September, and is deemed very suitable for wine. It is confused by some authors with the black morocco.

PASCAOU BLANC, Duh.

Vitis *fertilissima, uvâ perampla et precia, acinis rotundis, &c.*

This variety is pretty common in the vineyards of Provence, the joints of the shoots are very near to each other; the berries are greenish white, and of a round form; the fruit most exposed to the sun takes a ruddy tint, and ripens the end of August, or beginning of September. They are excellent for making white wine, which it is necessary should be made speedily, as the grapes being very early, are readily attacked by bees and other insects, which detract from their quality, and accelerate their decay. In Provence they also cultivate another variety, which differs only in being of a black colour, and is known by the name of *Pascaou négré*.

COLUMBAU.—Pr. Cat. No. 285.

Le Columbal,
Le Coloumbau, } Duh.

Vitis *uberrima, racemis mediocribus, acinis nigris et albis.*

This grape is cultivated in all the vineyards of Provence, where it is known by the title here adopted; the wood is of a blackish red colour, and the joints are near to one another. The fruit ripens about the end of August, at the same period as the pascaou, to which it has some resemblance, both in form and taste. Its produce is very abundant, and if not gathered as soon as mature, it speedily rots. It does not require particular care in regard to pruning, which circumstance is confirmed by a provençal proverb, which says, "*prune me well, prune me ill, plant me always.*" This grape is also considered a table fruit, having a sweet and agreeable flavour: there are two varieties, the white and the black.

ANGULEUX, Duh.

Vitis *acino oblongo, duro, angulari et rufescenti, &c.*

Garidel designates this variety as very singular, on account of the particular form of its berry, which is oblong or angular, of a reddish cast, and of sweet and exquisite taste; and he states at the same time, that it is very scarce.

RAISIN DE LA PALESTINE.

Under this title, Mr. Pirolle states there is a variety of grape cultivated by Mr. Boursault, of Paris. The vine is very vigorous; the clusters eighteen inches to two feet long; berries large, and oval, of a golden yellow at maturity, and sufficiently spaced on the bunch, to allow of their ripening at the end of September or commencement of October; the pulp is of very pleasant taste. The plant appears to be productive, but it is recommended in that latitude to train it against a wall, and to leave but a moderate number of clusters, in order that it may attain to maturity in that climate.

UGNE DE MARSEILLE.—Pr. Cat. No. 371.

This vine, which is one of those whose fruit is most esteemed for the table, is from the south of France, and matured its fruit with me the present year on the twenty-fifth of September; the berries are round, whitish, with some gray tints where fully exposed to the sun. The Ugne-lombarde also ripens in September in my vineyard; the fruit is white and a little oval.

CASCARALO BLANC.—Pr. Cat. No. 317.

This has fruit of a musky flavour, the berries are of oval form, and have often a tinge of red on them; it is a pleasant table fruit, and ripens well in this latitude. In France it is cultivated more particularly for wine.

ST. VALENTINE.—Pr. Cat. No. 167.

Saint Valentin.

This vine produces berries which are of rather oval form and very sweet; their colour is white or a little tinged, and they ripen well in this latitude, being mature on the 15th or 20th of September.

PIQUE POULE BLANC.—Landes.

The fruit of this kind is round, white, and of pleasant flavour for the table, and ripens about 20th September. It was by mistake omitted in my catalogue of vines: there are several other varieties, some differing in quality and others in colour: this is from the department of Landes, in France.

DE CANDOLLE.—Pr. Cat. No. 157.

Riesentraube.

This vine has round fruit of purple colour and of large size, which comes to maturity about the 30th September. It is valued in France as a table fruit.

LARGE DAMASK.—Pr. Cat. No. 160.

Gros Damas.
Damas le gros.

This is also cultivated in France as a table variety. The berries are very large, very oval, and of a purple colour, and ripen about the 10th to 15th September.

GRINIOLO.

The berries of this are round, white, and of fine flavour, which circumstance renders it suitable for the table. It ripens in my vineyard the 15th of September. There is a grape cultivated in the south of France, called the Grinoli, which has black fruit.

TERRE PROMISE.

Terra promessa.

This vine is stated by authority on which I can rely, to produce fruit of extraordinary size; it being only recently obtained, I am not enabled to give further details.

MONTPELLIER.—Pr. Cat. No. 162.

Raisin de Montpellier à grandes grappes.

This vine is of vigorous growth and bears well; the bunches are very large, and the fruit of good flavour. It is considered in France a valuable table variety.

ASPIRANT BLANC, SEEDLESS.—Pr. Cat. No. 153.

Aspirant blanc sans pepins.
White seedless aspirant.

This variety has produced fruit with me; it is white and of very pleasant flavour, with the advantage of containing no

seeds. I take this to be the kind mentioned by some authors as a seedless variety of the chasselas.

BLACK MUSCADINE.—Pr. Cat. No. 6.

This has berries of medium size, which are round, of a black colour and beautifully powdered with a purplish bloom; it bears well, ripens in September, and makes a fine appearance; the flesh is not as delicate and juicy as the white muscadine.

BLACK DAMASCUS.—Pr. Cat. No. 21.

Worksop Manor grape.

This grape, although late at maturity, is deemed an excellent and valuable variety; the berries are round, large and black; the skin thin and the flesh delicate, rich, juicy, and of very fine flavour. On the same cluster are contained berries of different sizes, the large ones containing but one seed, and the small ones generally none.

PITMASTON WHITE CLUSTER.—Pr. Cat. No. 33.

This is a fine table variety recently brought into notice in the English collections. It originated from seed at Pitmaston, near London, and is there held in much esteem.

BLACK LISBON.

Black Portugal.

This I consider synonymous with the black hamburgh, to which the English authors state it bears a great resemblance. The fruit is stated by them to be large, of globular form, with a thin skin, black and juicy, and the bunches shouldered. I presume the black Portugal of some authors refers to the same grape. As I have vines growing, I shall be able to test all these points.

GREEK GRAPE.

Speechly mentions this in his list of grapes, and states that the berries are of moderate size, of rather an oval form, and of a blueish white colour, growing close on the clusters, which are of handsome shape and moderate size; the fruit is of delicate taste and much esteemed, and the leaves grow on very short foot-stalks, and resemble those of the sweetwater.

I have some vines which I received from Europe as a variety of the Tokay, that produce an early pleasant table grape, of the same taste as the white muscadine, but with little flavour, and which have been considered by some connoisseurs to be the same as this variety.

RAISIN DE CARMES, Hooker Pom. Lond.

Raisin de Cabo.

This vine has very large berries, of an irregular oval form, and of a dusky reddish purple colour, covered with bloom; the skin is thick; the pulp firm, juicy and rich, with some acidity; the bunches are long and the berries loosely set.—The vine grows freely and is productive.

EARLY WHITE GRAPE OF TENERIFFE.

The berries of this variety are of medium size and of round form, the skin thin, and the pulp very juicy and sweet. It has been for a long period cultivated in English collections, and its berries and branches have a great resemblance and affinity to the white muscadine.

RED GRAPE OF SYRACUSE.

This is one of the old varieties long since introduced to the London collections; the berries are very large and fine, of an irregular oval form and of a red colour.

GOLDEN GALICIAN.

A Spanish grape of a yellow colour, and passable in point of flavour; the berries are of good size, of an oval form, and the flesh firm; the foot-stalks are of a pale yellow colour.

BRICK GRAPE.—Langley Pom.

This is described by Forsyth as having small berries, nearly oval, and of a deep red colour, with a thin skin and very sweet juice; its title is derived from its colour. I have no doubt it is synonymous with some other described variety, and is said to be with the flame tokay.

BLACK GRAPE OF TRIPOLI.

This is a well known grape of the English collections; the berries are large, round and black, and have each but one seed; the pulp is rich and juicy; the foliage is vigorous, and puts on a beautiful appearance in autumn.

WHITE GRAPE OF ALCOBACA.

This grape, carried from Portugal to England a long time since, where it has been cultivated in their collections, has white berries, which are large and oval, with a thin skin and juicy flesh; the clusters are large and long, and without shoulders.

DAMSON GRAPE.

Under this name Speechly describes a vine, the berries of which are very large, oval, and of a beautiful purple colour, growing loosely on the bunch, which is of large size; the leaves also large, and more thick and succulent than those of any other sort.

BLACK CAPE.—Pr. Cat. No. 42.

I saw this grape in great perfection in 1828, in the garden of Samuel G. Perkins, Esq. near Boston. It was on the 9th of October, and the fruit was then not quite ripe, the vine being in open culture; the bunches were very large and shouldered, some of the largest which the vine had produced, weighed two pounds. A shoot which one of the vines had made in 1827, produced about fifty bunches in 1828. The berries varied a great deal in size—part of them were the largest I had ever seen, and resembled good sized plums, others were not above two-thirds, and some but half the size of the largest; the taste and flavour of the fruit were very pleasant. The vines, though large, were regularly covered during the winter months, as is in fact the course pursued at Boston in regard to nearly all foreign kinds.

This vine was originally brought in a tub from the Cape of Good Hope without any name, but from the circumstance of its origin, received the above title. It bears an affinity in several respects to the black Damascus and Morocco, and may possibly prove a synonyme of one or the other. It may justly be deemed a most valuable acquisition to our stock of vines.

NORTON'S LARGE OVAL PURPLE.—Pr. Cat. No. 48.

I received this valuable grape from Dr. Norton, of Richmond, a gentleman distinguished for his general knowledge in horticultural pursuits, and particularly so in regard to the vine. He remarks that its fruit is decidedly the finest he had ever seen, and that his French friends say that they have never seen better in any part of Europe. He also states that the vine resists more than is usual, the influence of frost and the variation of the weather during the winter season.

This vine was received by Mr. Wickham, from London, and is therefore, without doubt, known there under another name.

EARLY OVAL.

By this title a grape is known and cultivated around Boston which is much valued; the fruit ripens very early, the skin is thin, and the flavour delicious; the berries grow close, and are generally thinned out by cultivators.

I noticed a large number of very thrifty vines in the nurseries of the Messrs. Winships at Brighton, in whose collection are also concentrated a great variety of the choicest kinds of vines to be found in the grape houses and gardens around Boston; in addition to which, they have a large assortment of fruit and ornamental trees, plants, &c. which they show great enterprise in extending.

JULY GRAPE.—Pr. Cat. No. 1.

Maurillon hatif, Duh.
Madeleine.
Morillon hatif.
Morillon noir hatif.
Petit morillon hatif.
Raisin précoce.
Raisin de la madeleine.
Early black cluster.
Magdalen.
Vitis præcox of Columella.

Vitis *acino parvo, subrotundo, nigricante, præcoci.*—Duh.

The leaves of this vine are small, of a light green hue above and beneath, and the borders indented with large teeth somewhat pointed; the bunches are small and very compact; the berries which compose them are also small, round, and of a blackish violet colour, covered with bloom—they are sweet but not high flavoured, the principal merit consisting in their early maturity, it being the earliest of all foreign grapes except the one next described, and in this vicinity ripening its fruit early in August. It serves as an appendage to the dessert where persons pride themselves on the earliest fruit. The

soils most congenial are such as are light and loose, and a southern exposure is also deemed preferable in order to advance the maturity, but I have found it do well and ripen early in very indifferent soils and unfavorable exposures, and I consider it by no means difficult in regard to these points.

ISCHIA.

Thrice bearing vine.
Raisin des trois récoltes.
Précoce noir, ou des trois récoltes.
Vitis trifera, } Pliny.
Vitis insana, }

This peculiar variety of the vine, which is alluded to by Virgil (Geor. II.) and also by Pliny (Hist. Nat.) appears to be a native of the island of Chios, from which it was carried to Calabria, and the island of Ischia, where it is known by the title of "Uva di tre volte l'anno," or, "Vine of three crops a year."

The fruit possesses a most agreeable flavour and much sweetness, and has the different qualities deemed necessary for making good wine. The vine is of very vigorous growth, so much so, that long pruning is deemed preferable to cutting close. When the vine is at the age for bearing, the first and largest crop ripens in latitudes corresponding with New-York, and where the vines have a southern exposure, from the 10th to the 15th of August; the second crop from the 25th of September to the 5th October, and the third, which is a mere demonstration, from the 25th October to the 10th November, unless the growth of the vine should be stopped by frosts.

The two last crops are produced by an appropriate system of pruning. About the 10th or 15th of June, just as the blossom has past and the fruit becomes formed, the ends of the strongest shoots must be cut off two to three joints beyond the last bunches—this will cause new shoots immediately to spring from the joints of the new wood that are left, which will unfold in due course a second crop, and as soon as the blossoms of these secondary clusters have fallen, the operation of pruning off

the shoots must be renewed with these as in the first instance, which will cause the formation, but with less rapidity than before, of a third set of shoots, from which will be developed a third crop of clusters. These last it is better never to prune; and the fruit on them, which is but scanty, seldom attains to maturity in high latitudes.

A light and rich soil is preferable for this vine, and in droughts it would be better to irrigate it. To obtain the three crops in this latitude, espalier or lattice trailing is indispensably necessary, accompanied by a southern exposure.

In open field culture two crops only, and the second rather indifferent in point of size, have been obtained from it, but in the vicinity of Paris in the year 1825 this grape exceeded all that had been anticipated from it; vines trained in the espalier form gave an abundant crop fully ripe the 18th of August; a profuse second crop was at perfect maturity on the 20th of September, the fruit of which was larger and in greater quantity than the first; and at the same period the berries of the third crop had formed, and the vines presented a fourth crop of blossoms. The season being particularly favourable, the latter ripened on the 30th of October; they were abundant, about the size of common peas, of good appearance, but slightly acid. Some writers have confounded this with the Madeleine or Morillon hatif, but their only resemblance is in colour and early maturity.

BLACK TOKAY.

New black cluster.—Pr. Cat. No. 2.

This grape I received from my esteemed friend the Hon. Jonathan Hunewell, of Boston, whose liberality and general attainments in horticultural pursuits are so generally known and appreciated.

It is an exceedingly vigorous and productive variety, and supports the cold better than most of the foreign kinds usually cultivated, and cuttings planted in my nursery have formed in a single season vines nearly or quite as large as those of our

native varieties of the same age. The fruit is of medium size, black and of pleasant flavour, is suitable for the table, and has also the qualities requisite for making good wine. It has been called by some persons Black cluster, and being received by me under that title, and finding it different from the kind usually so called, I enumerated it in my last catalogue as the "New black cluster." It is possible it may prove synonymous with one of the dark varieties of Tokay, which will be found under the head of wine grapes.

PROBYN'S LARGE WHITE.—Pr. Cat. No. 11.

Under this title I have in cultivation a variety which I received from Edward Probyn, Esq. of New-York, in whose garden is now growing a very large, flourishing, and productive vine, which affords annually numerous shouldered clusters of excellent white fruit; the berry is round and of large size; the skin firm, and the juice very sweet and delicate. Some bunches have been exhibited by that gentleman, weighing about 1½ pounds. I do not mention it here from a consideration that it is distinct from all others, but to show that it is not the kind which it has been considered by several intelligent horticulturists. By such it has been pronounced to be the royal muscadine, from which I find it to differ in several respects; particularly in this, that it is one of those kinds most sensible to early frosts, and to the severity of the winter in our country exposures; where, if unprotected at that season, the young vines are killed to the ground, and older ones often much injured; whereas the royal muscadine is well known to be one of those which best support the cold. It is doubtless a variety introduced from the south of France, or some other southern climate, or perhaps a seedling from some grape from that quarter. Mr. Probyn states, that his vines support the severest winters entirely uninjured, although he affords them no protection. But this is to be attributed to their being in a city garden, where the great shelter and ameliorated atmosphere consequent on such a congregated mass of dwellings, generally cause the most tender southern varieties to succeed.

WALKER'S LARGE WHITE.—Pr. Cat. No. 10.

This is a very large and fine grape; the colour, as the title indicates, is white, the form oval, and the taste and flavour very agreeable; the bunches are shouldered and very large, and have received the encomiums of several members of our Horticultural Society. It is very distinct from the preceding, and the fruit of larger size. The vine, which is the parent of those found in our collections, is growing in the garden of the late Dr. Walker of New-York, to whose politeness, and that of his son, I am indebted for the vines in my possession.

ROUGH BLACK, Gibbs.—Pr. Cat. No. 142.

This variety was received from the imperial garden at Schoenbrun, near Vienna, by Col. Gibbs, of this island, to whose politeness and liberality I am indebted for it, as well as for many other varieties received by him from the same source, to which I have added his cognomen.

This vine is prolific in its crops, and the grapes are considered very good.

AUSTRIAN MUSCADEL, Gibbs.

This is from the same collection as the preceding, and ought probably to have been placed with the Muscat class. The vine is hardy and exceedingly prolific, but the grapes ripen late; the bunches are large and the fruit white, but it has not yet sufficiently matured here to pronounce upon its quality. It needs short pruning, and would also succeed better further south.

The following additional varieties now in my vineyard were received from the same source—Queen, Blue Sylvan, Rough white, Red cruger, Little silver white, Early Leipsic, Red Sheerkat, Tckete-tara-gomer, and some others, including the Blue cartager, which will be found under the head of wine

grapes. The Austrian varieties, which are principally derived from the Hungarian collections, it is expected will become in most cases acclimated to our country. In regard to the success of those in Mr. Gibbs' collection, that gentleman has given some details on the subject at different periods in the American Farmer.

BLACK PARSLEY LEAVED.

Lombardy of some American collections.

I have in my vineyard a variety of the parsley-leaved grape which produces black fruit, and which I do not see mentioned in the European authors, unless it be synonymous with the red parsley-leaved already described. I find this has been sometimes called the Lombardy, meaning doubtless the Flame tokay, the two latter names being used by some authors synonymously; but it can scarcely be that, as the colour of the grape of the one I am now describing is stated to be of much darker colour than the fruit of the Flame tokay attains. The foliage is very lasciniated, and resembles the others of the same class.

QUEEN, Gibbs.—Pr. Cat. No. 131.

This has round berries of good size, which are white with a bloom, and a little coloured on the sun side; they are sweet, and of very pleasant flavour, and the bunches are also of good size.

FENDANT VERT.—Pr. Cat. No. 121.

This grape, which I received from Lausanne, (Switzerland) is a native of the canton of Vaud. It is a table fruit resembling the White chasselas, and delicious to eat. It also yields a wine like the Rhenish, is one of the kinds least sensible to the cold, and, what is deemed of great importance there, the produce is not injured by manuring. Its title is derived from the circumstance of the berries being crisp, and crackling in the teeth when eaten.

Having made the request of my Lausanne correspondent, who owns a vineyard and is extremely intelligent on the subject, to send me such vines only as are there cultivated with most success, he transmitted to me eighteen varieties, which will be referred to and enumerated in the course of the work.

In addition to the table varieties of the grape which I have already described, there are a number not so generally known, but which are most highly valued for the same purpose, in the southern and middle parts of France, of which I will here give a list; the numbers which precede them refer to their enumeration in the author's catalogue.

Black round grapes.

218 Peyran noir,
230 Raisin prune,
238 Terré moureau noir,
239 Terré de barri noir,
245 Ugne noir.

Black oval grapes.

247 Aspirant,
Ouliven,
267 Raisin noir de pagez,
273 Ulliade, *Bouches du Rhone.*
274 Ulliade rouge.

White, or yellow oval grapes.

280 Calitor blanc,
286 Dure peau,
288 Galet blanc,
293 Joannen blanc,
296 Panse commune,
88 —— musquée,
299 Picardan,
304 Raisin blanc de pagès.
305 Raisin des dames.

White, or yellow round grapes.

314 Augibert blanc,
319 Clarette ronde,
323 Doucinelle,
Raisin de Notre Dame,
355 Ugne blanche,
356 —— de Malade,
357 Ugne Lombarde.

Gray, or violet oval grapes.

359 Clarette rose, 360 Damas violet,
362 Martinen.

Gray, or violet round grapes.

364 Grec rose, 369 Plant de la barre rouge,
371 Ugne de Marseille.

The following are also mentioned in French lists, as valuable table grapes.

154 Blussard blanc,
155 Blussard noir, or Belosar à gros grains.
Perle rose,
Pernan,
261 Perlossette,
57 Précoce blanc,
370 Raisin de Gênes,
166 St. Antoine.

With the fund of information furnished by the various authors that have been enumerated as the basis, great advantages are afforded to future experimentalists, to extricate the history of the vine from a labyrinth of confused names, and perhaps no means would be as effectual in attaining this end, as critical examinations made by the members of the various agricultural and horticultural societies which now every where exist, of the kinds cultivated in their respective vicinities; the result would no doubt terminate in the formation of a correct nomenclature, more particularly with regard to the most estimable varieties.

At present, we are very deficient in information, even in regard to the native varieties of our own country, and the number of valuable vines that have been brought to notice, within the few years that attention has been paid to the subject, as will be particularly detailed under the head of "American Vineyards," prove that no historian bears witness of any clime which was originally so rich in indigenous varieties, the result of the spontaneous efforts of nature, unaided by the arts or culture of man.

WINE GRAPES.

I will now proceed to describe the varieties which are most generally used for making wine, and which form the major part in the finest known vineyards. Under this head are necessarily included many varieties that are very estimable as table grapes, but whose most important use in foreign countries being for wine, they are consequently placed under this head.

BLACK CLUSTER.—Pr. Cat. No. 94.

Maurillon, Duh.
Maurillon noir.
Morillon noir.
Pineau noir, of Burgundy.
Pineau de Bourgogne, Chaptal.
Auvernat, or *Auvernas.*
Auvernat noir.
Pimbart.
Manosquen.
Merille.
Noirien, or *Noirier.*
Massoutel.
Gribalet noir.
Farinau.
True Burgundy.
Small black cluster.

Black Orleans.

Vitis *uvâ mediocri, sublaxâ, acinis dulcibus, nigricantibus.*

This variety has leaves slightly five lobed and very regularly indented; the bunch is of moderate size and shouldered; the berries are rather oblong and hang loosely, and are about the size of the white muscadine; the taste is pleasant, with a peculiar flavour. It is not considered a table fruit, but is highly prized for wine, and ripens its crops uniformly, and at the same time as the white chasselas. It stands the frost well, being one of the most hardy kinds. The crops are not great, but the wine is rich, keeps well, and has an agreeable bouquet. The Maurillon class, of which the finest vineyards of Burgundy are composed, and the different varieties of which are deemed the staple of the vineyards of France, owes its name, which is derived from the word *maure*, to the black colour of this the original variety, and many other black grapes which are not of the family of the Morillon or

Pineau, are called in other French vineyards by the names of Maurillon noir, &c. and this is known under all the appellations given as synonymes. It ripens here the beginning of September. The class of maurillons originally came from Italy; but this is the only one which has retained its primitive name, and is described by Baccius, whose treatise on the vine was written in 1566. It constitutes rather a bad comment on the theory of "exhausted varieties," that this very aged vine should have the preference in France at this day over all others.

Under the title of Pineau or Pinot a great number of red and black varieties of grapes are found in various French vineyards, which are in fact totally different in character, and serve only to make inferior wine; great care and circumspection are therefore necessary to obtain the genuine kinds. The title Pineau was originally applied to such varieties only as produced berries shaped like the pine cone, but some kinds having round berries are now justly included in the same class, being varieties of the same family, similar in quality but varying in form.

WHITE MORILLON.—Pr. Cat. No. 95.

Maurillon blanc. Duh.
Morillon blanc.
Auvernat blanc.
Mélier, or *Mélier blanc.*
Weiss-klefeln blanc.
Burot.
Weiss-kloefner.
Moruain.
Daune.
Daunerie.
Beaunier.
White auvernat.

Vitis *præcox; uvâ elongatâ, acino rotundo, albo flavescenti, et dulci.*

The clusters of this variety are longer than those of the preceding, and the berries are nearly round, of moderate size, not very thick set, of a greenish white, which becomes blended with pale yellow at full maturity; they are rather more sweet and agreeable than the black variety.

The leaves are slightly lobed, and are bordered with large indentures; they are of considerable size, green on the upper

side, whitish and downy beneath, and supported on large long petioles.

This grape ripens here at the end of August or beginning of September, is a pleasant early table fruit and makes good wine, which keeps well; the grapes may also be kept fresh through the season. It is said to thrive best on sloping ground inclining to the west or south, but I consider it by no means difficult in this respect as I have had some vines for several years in a most unfavourable locality where they have never failed to do well. It has the same hardihood in supporting frost that is common to the class generally.

PINEAU-FRANC.—Pr. Cat. No. 102.

Franc-pineau, Duh.
Bon plant.
Raisin de Bourgogne, } Erroneously.
Maurillon noir, }
Morillon noir, }
Pinet.
Pignolet.
Pinsalé.
Pincaon.

Vitis *acinis minoribus, oblongis, dulcissimus*, Garid.

The bunch of this grape is small, of rather a conical form, supported by a very short peduncle, and formed of oblong berries closely set, of a flesh coloured red. The leaves are dark green, lightest beneath, and covered on both sides when they first expand with down, which is not the case with the Morillon noir; they are supported on long petioles, and are divided into three principal lobes, which are slightly indented on their edges.

This vine is not very productive, but its fruit has an excellent taste and produces the most delicate wines of Burgundy. The wood is red and the joints near to each other. It will be perceived that this grape is known by various names in the different French vineyards, and it is often confused with the other varieties of the Pineau or Morillon.

GRAY BURGUNDY.—Pr. Cat. No. 100.

Pineau gris.
Griset blanc, Duh.
Petit muscadet.
Auvernat gris.
Rin gris.
Malvoisie.
Pouilli.
Le Soli.
Le Grennetin.
Fromenteau.
Gentil gris.
Weiss klefeln griss
Grau kloefner.
Bureau.

Gray Auvernat.

Vitis *acinis, minoribus, dulcibus et griseis*, Garid.

This has leaves of a lively green hue and slightly lobed; the clusters are short, moderately large, composed of round berries which are pretty close, of a grayish colour, and of a sweet and perfumed flavour. There were vineyards formerly in France composed entirely of this grape, and the fine vineyard of Pouilli is still so in a great measure. It is also found in the vineyards of Provence, and is known in the different districts by a great variety of names, and often confused with other varieties as the synonymes evince. The white wine made from it is in high esteem, and deemed the third best in France. It abounds in alcohol and has much body, is clear and mellow with a fine bouquet. The vine is said to succeed best in a sandy or gravelly soil, and on inclined and warm expositions; but a celebrated vigneron has informed me that it will succeed in almost any situation that is open and airy. It is very hardy and one of the least difficult in point of culture, and in addition to its wine properties, is esteemed as a table fruit.

BOURGUIGNON NOIR, Duh.—Pr. Cat. No. 104.

Trousseau du Jura.
Tresseau.
Plant d'Arles.
Plant de Roi.
Damas.
Grosse-serine.
Pied-rouge.
Côte rouge.

Boucarès. *Gourdoux.*
Etrange. *Rouge dè Bourgogne.*
Red Burgundy.

Vitis *acino oblongo, minus acuto, nigro et dulci*, GARID.

This grape has in its berry a great resemblance to the Pineau-franc, but it is less elongated in proportion to its size, and the bunches are not so compactly formed. Its leaves are rather obtuse at the apex, divided into five distinct lobes, regularly indented and supported upon a short very red petiole. This variety is also known under a great many common names, as is designated by the synonymes. It yields good crops, and succeeds well on strong soils, and is, in common with its congeners of the pineau family, deemed among the most valuable that are cultivated for wine.

BOURGUIGNON BLANC, DUH.—PR. CAT. No. 105.

White Burgundy. *Melé.*
Pineau blanc. *Gueuche blanc.*
Feuille ronde. *Menu.*
Picarneau. *Gouche.*

Vitis *uvâ conferta, acino ovato, viridi lutescente.*

The leaf is large, slightly covered with down, and of a much paler green beneath than above, indented on its edge, but not distinctly lobed. The clusters are composed of berries somewhat oblong and very closely set, which become of a fine yellow colour at the period of maturity.

AUVERNAT ROUGE CLAIR.—PR. CAT. No. 98.

Rose Burgundy. *Fromenteau*, Sprenger.
Gris rouge. *Gentil rose ?*
Rothliehtner.

This grape is much cultivated in the vineyards of Champagne, in connexion with the Auvernat blanc and Auvernat

gris, to form the far famed wine of that name. It resembles in its general qualities the other varieties of the same family, its principal variation being in its colour. It ripens also at the same time, maturing its fruit here early in September; the vine is hardy and of easy culture. In the vineyards of that part of France situated on the Rhine, it is extensively cultivated, and succeeds well, yielding abundant crops and affording excellent wine, which has much body and an aromatic flavour.

In addition to those described there are other varieties of the Pineau or Morillon family, such as the Morillon gros violet, Pineau de coulange, Pineau fleuri, and various others. The Morillon panaché will be found under the head of striped Aleppo among the table grapes.

The appellations Pineau, Auvernat, and Morillon are often indiscriminately applied to different varieties of this family.—The varieties are also known by a greater number of names as synonymes than any other class, which arises from their being far more extensively cultivated, and from their having received new titles in the different localities to which they have been from time to time transplanted.

MEUNIER, Duh.—Pr. Cat. No. 93.

Maurillon-Taconné.
Fromenté.
Resseau.
Meunier à saint noir.
Farineux noir.
Noirin.
Savagnien noir.
Miller grape,
Miller's Burgundy, } Of the English.

Vitis *subhirsuta; uvâ brevi, crassa; acino nigro rotundo.*

This variety has considerable affinity to the Catalan. Its leaves are trilobate, the two lateral ones being crenate; when young they are covered with white down, which easily distinguishes them, from which circumstance this vine has acquired the title here adopted. The cluster is short and thick, composed of round black berries, which are of good size and set

rather close; the juice is pleasant, sparkling, and vinous. It is pretty common in French vineyards, and is cultivated on account of yielding good crops, and enduring for a long period. It succeeds best in sandy and light soils, but will flourish in almost any open and dry location. It is very hardy, of easy culture, ripens here early in September, and answers very well as an early table grape. Some English authors state that it takes its name from Miller who raised it from seed, but the French give a better reason for its title as mentioned above, and they are no doubt correct.

SAVAGNIEN BLANC, Duh.

Meunier blanc. *Matinié.*
Meunier à saint blanc. *Uni-blanc.*
White Miller grape.

Vitis *subhirsuta, uvâ crassâ, acino albo, subovato.*

This variety differs from the preceding by the minor lobes of the leaves being more distinct, and its berries being white, rather larger, and a little oval. It must not be confused with the sauvignon, which is a very distinct fruit. This vine must be the variety of the Meunier described and figured by some authors with white berries, and also called by others White Miller grape. The fruit is sweet and agreeable in flavour, and makes passable wine. The vine will thrive in a meagre soil and is not readily injured by frost, but when the blossoms are destroyed by it they are not renewed that season. It is generally cultivated in French vineyards, and is not subject to a blight of its blossoms.

WHITE SAUVIGNON.—Pr. Cat. No. 106.

Suavignon, Duh. *Servignen.*
Sauvignon blanc. *Sucrin.*
Sauvignen. *Fié.*
Maurillon blanc, erroneously.

Vitis *serotina, acinis minoribus, acutis, flavo-albidis, dulcissimis.*

The leaves of this vine are scarcely lobed at all, but the in-

dentures are pretty deep and very regular. The bunch is short, formed of rather small berries, which are white approaching to a yellow hue, more particularly on the sunny side, where at the period of maturity they are covered with small brick coloured points of remarkable appearance. This vine was formerly far more common in the French vineyards than it is at the present day. As the fruit possesses much perfume, it imparts to the wine a peculiar character; and not being greatly sought after, the culture of this vine has been consequently neglected. It ripens here early in September. I have a variety received from an American collection under the name of Red Sauvignon; but as I do not perceive such an one named in the French catalogues, I presume there must be some error in regard to it, and that it is synonymous with some variety known under a different title.

LE MOURVEGUÉ, Duh.

Mourvedé. *Mourvebré.*

Vitis *serotina; acinis nigris, mediocribus, rotundis, dulcibus.*

This variety is very common in the north-west part of France, where it is known by different titles. It is not preferred by those who are particularly tenacious of the quality of the wine, and are regardless of the quantity of the produce; the berries are black, round, of pleasant taste and medium size.

MOURVEDÉ FARINOUS, Duh.

Vitis *serotina acinis subamplis, nigris, rotundis, &c.*—Gouffé.

This variety only differs from the preceding in its berries, which are larger, and have an appearance as if dusted over. These two varieties are among the choicest for making wine, and are not less agreeable for the table. As they are late in the period of vegetation, they are very hardy, and succeed readily in localities exposed to cold and humidity. Their juice is high coloured and sweet, and is in France much used in making a kind of domestic ratafia, which is much sought after, especially when it is prepared with care.

LE BRUN FOURCA, Duh.—Pr. Cat. No. 156.

Gros Taulier, of some vineyards. *Plant de Bordeaux.*

Vitis *uvâ amplâ; acinis nigris, magnis, rotundis, &c.*

The title here adopted from Duhamel, is that by which this vine is known in Provence, and it is found under culture in all the vineyards of that district of France, and considered excellent for wine and pleasant for the table. Although called Gros taulier by some persons, it differs however from the taulier, of which we shall speak hereafter. Its shoots are not rampant, and the branches are not so red; its leaves are larger, of a darker green, and more deeply serrated. It is not so early as the Taulier, but earlier than the Mourvedé, and also more easily affected by frosts than the latter. It is cultivated in the same expositions, and its fruit is not subject to rot.

LE TAULIER.

Plant de Manosque. *Manosquen.*

Vitis *acino nigro, rotundo, duriusculo, suavis, saporis, succo nigro, labia, inficienti.*

This vine seems nearly allied to the *Pineau* of Burgundy, which forms the greater portion of the vineyards of that province, and which should not be confounded with the *Franc-pineau.* There are few grapes which have such a variety of names. The leaves of this vine are round and indented, green and shining above, and light green beneath; the peduncle is red, and the shoots are very rampant. It is one of the most estimable varieties that can be cultivated; it yields a strong bodied wine that is rich and pleasant, and very suitable for transportation, and the fruit, although the skin is thick, ripens perfectly.

LE CATALAN, Duh.

Vitis *acino subrotundo, nigro molli.*

This variety, very common in Provence, matures its fruit at

the same time as the Mourvedé, with which it is often confounded. The leaves and wood of the two resemble each other, but there is a wide difference in their fruit. The Catalan has a woody stem, the bunches are shouldered or winged, the berries are generally larger and their juice is very sweet; the Mourvedé, on the contrary, has a delicate stem, the bunches are of small size and not winged, the berries closely set, and they have not a very high flavour, being, as Garidel expresses it, *minus suavi*.

M. David states his having formed a plantation with vines, which he had received direct from Alicant, and that he found they corresponded both in growth and in fruit with the Catalan, which abounds in the vineyards in the neighbourhood of Aix.

Although people often confound the wines made from the Catalan with those of the Mourvedé, it is proper to observe, that there is some difference between them. Those of the Petit-Mourvedé, or le Mourvegué, contain a greater portion of colouring juice, and are more *couvert* and more generous. The Catalan is preferred for vineyards, because it yields the most without any sensible depreciation in the quality. This, and the two preceding varieties, merit a preference in vineyards where it is an object to have wines that will keep a long time, or such as are suitable for exportation.

The wine made from the two sorts of the Mourvedé, even when the fruit has acquired its full maturity, is austere when new, but it acquires in a short period its mellow and saccharine flavour. The cultivators consider its use as beneficial, and prefer it to all other wines, because it is more nourishing and strengthening.

ALBILLO CASTILLAN, Duh.

Vitis *uvâ subcylindricâ; acinis obovatis, confertis, mollibus, viridibus succosissimis.*

The leaves of this vine are a little irregular, commonly palmated, a little wrinkled and uneven on the upper side, and thickly covered with very close white down on the under side.

The clusters are of medium size as well as the berries, which are so excessively delicate and succulent, that the juice entirely runs out with the least pressure. Their taste is very sweet and pleasant, but they are not high flavoured, and they ripen very early.

The title Albillo, is a general term under which the Spaniards, and particularly the vignerons of Andalusia, connect many classes of grapes, which are evidently very nearly allied to each other, and which they afterwards designate separately by adding a second title, pretty much in the same manner that botanists apply specific names.

JOANNEN BLANC.—Pr. Cat. No. 293.

Jouanen, Duh. *Raisin de St. Jean.*

St. Jean.

Vitis *præcox, acino acuto, subviridi, dulci et molli.*

This variety is rather common in the vineyards of Provence where it receives its title, from the circumstance of its ripening just after St. John's day. Its leaves are slightly lobed, sometimes to so small a degree as not to be noticed. The fruit ripens with me the twentieth of September; the bunch is of medium size, composed of oval formed berries, of a greenish white colour, which are very sweet. There is a sub-variety with black berries, which is commonly called Jouanen negré.

DOUCEAGNE, Duh.

Vitis *præcox, acino rotundo, subviridi et dulcissimo.*

This variety is not of as early maturity as the preceding, but ripens as soon as most other kinds, and it is also cultivated in the vineyards of Provence. The berries are white, round, and sweet.

DOUCINELLE NOIRE, Duh.—Pr. Cat. No. 189.

Vitis *uvâ mediâ; acino subrotundo, ex violaceo nigricante, duro.*

The leaf of this vine is large, divided by slight lobes, and bordered with large and unequal indentures. The bunch is five or six inches long, composed of berries which are very close and compressed, of a dark violet colour approaching to black, with a thick and brittle skin. It is cultivated in the vineyards of Provence.

JAEN NOIR, Duh.

Vitis *uvâ magnâ, acinis confertis, duris, negerrimis, cute crassissima.*

The leaves of this are palmated or lobed, of a dark green, which becomes tinted with a reddish violet as the fruit approaches to maturity; the under sides of the leaves are covered with down, which does not adhere very closely. The bunches are large, weighing in some cases five pounds, composed of berries of medium size, round and closely set, with a very thick and very hard skin, which is of exceeding black colour. There are many sub-varieties of this grape which are not of so dark a colour, and there is even one which produces white fruit. In all, or nearly all the provinces of Spain, they cultivate some varieties of grapes under the name of Jaen, or Jaen blanc, but this is the only one or the principal one from which wine is made in various places.

BOUTEILLANT, Duh.—Pr. Cat. No. 177.

Cayan, of Marseilles.

Vitis *acino nigro, magno, rubenti et subaustero.*

This variety is common in the vineyards in the environs of Aix, in Provence, and is also cultivated at Marseilles, where it is known by the title given as a synonyme. The grape is large and black, and is of the first quality for wine as well as for the table.

UNI BLANC, Duh.

Vitis *fertillissima, uvâ laxâ, elongata, &c.*

Among other characteristics this vine differs from the preceding by its leaves of rather round form, very rarely lobed, and not very dark green; the cluster is loose, very long, composed of round berries, which are of a greenish colour, but become russet next the sun and sometimes a little reddish; the skin is thick and the flavour of the fruit sweet without insipidity. This grape is cultivated in Provence, and is one of those which keep well.

UNI ROUGE, Duh.

Vitis *uvâ longiori, acino rufescenti et dulci.*

This variety is also cultivated in Provence; the flowers are very subject to blight, which often renders it sterile, but when it is productive, it yields exquisite grapes, which make excellent wine. There are two other kinds, which are considered as subvarieties, and are mentioned by Garidel; one is called in Provence Uni-rouge-de-Partus, and only differs from the above in the colour of its berries, which are of a deeper red; the other produces berries which are harder and sweeter, the bunch is also smaller and more elongated, and the fruit does not redden until it has attained to perfect maturity.

UNI-NOIR, Duh.

Uni-negré, of Provence.

Vitis *uvâ longiori, acinis raris, nigro-rubentibus, subausteris.*

This vine is cultivated in the vineyards of Provence, where it is known by the second title given above. It does not make much wood, and its branches are generally very short. The fruit does not yield very good wine.

PLANT ESTRANI, Duh.

Vitis *uvâ perampla, acino rotundo, subflavo, punctis nigris notato, &c.*

The fruit of this variety is round, large, of rather an amber colour, marked with small black points, and has a very sweet and agreeable flavour. It is pretty common in the vineyards of several districts in the environs of Aix, in Provence.

LISTAN COMMUN, Duh.

Vitis *uvâ magnâ, acinis ovato-subglobosis, subconfertis, albis, cute tenui.*

This has leaves of medium size, irregularly palmated, of a dark green above, and covered beneath with white and close down. The bunch is large, formed of berries which are rather small, almost uniform in size, a little flattened at the base and at the top, and pretty closely set; they are of a greenish white where they are shaded, and of a rather dark yellowish gray where exposed to the sun. This vine is found in many of the provinces of Spain. At San-Lucar, it forms nineteen-twentieths of the vineyards, and is the basis of all the excellent wines of that country. At Rota there are also entire vineyards composed of it. It is one of the varieties held in most esteem at Malaga for making wine and also for eating. At Grenada they only cultivate it for the purpose of eating the fruit when fresh.

This vine has several sub-varieties, the two principal are, one with red fruit, and the other with very black fruit.

GROS MUSCADET, Duh.—Pr. Cat. No. 31.

Muscat fumé. *Muscadère.*
Fromenté. *Muscadet.*
Malvoisie.

Vitis *Apiana; acino rotundo et fumoso.*

Two varieties of the Muscadet are found in many vineyards, the le gros or large, and the petit or small; the leaf of the one

we are now describing is of a dark green hue on the upper side, and of a whitish green beneath, but without down; it is supported on a long petiole, divided by five nerves, and is slightly indented on its border with only a single serrature of much size, which is on the right side. The colour of this grape is very peculiar, being between a white and a rose colour; the bunch is of moderate size, as well as the fruit, which is extremely sweet and luscious; it yields well, and the fruit ripens early in September. I consider it one of the most desirable grapes for the table which ripen at that period; and on account of its extreme sweetness it is a very estimable variety to mingle in vineyards with grapes of harsh flavour, or in cases where it is desirable to render the taste of the wine more sweet, and to use it for the purpose of an essence grape. The vine is very hardy and of easy culture.

The Petit-muscadet, which is also sometimes called Muscadine or Muscadère, has leaves of smaller size, lobed and bordered with teeth that are more acute.

TERRÉ BOURRÉ.

This vine I deem one of the most desirable for vineyards on account of its vigour and productiveness; it seems also to support our seasons well; the berries are purple, of oval form, and of a pleasant vinous flavour, and the plant is a great bearer. It ripens with me about the 15th to 20th September, and is also an agreeable table grape.

MARVOISIN.—Pr. Cat. No. 368.

The berries of this vine are of good size, and of a gray colour, the form round or a little oval, and the taste sweet and agreeable; they ripen about the 15th to 20th September and are pleasant for eating, as well as being a wine grape.

NAVARRO.

This vine produces purple fruit of moderate size and of

rather oval form, which ripens with me about the 20th of September. It is from the department of Dordogne (France,) and I am not yet certain whether it is distinct from the variety called Navarre, (see Cat. 158) in the department of Landes.

LEHRMANN.—Pr. Cat. No. 159.

The fruit of this variety is round, and of a purple colour, and the vine is very prolific.

EPICIER.—Pr. Cat. No. 190.

Epicier grosse espèce. *Large epicier.*

This variety has round fruit of a purple colour, and ripens here from the 15th to the 20th of September; there is a variety with smaller fruit; both are from the department of Vienne in France.

GRAY TOKAY.

White Tokay.—Pr. Cat. No. 144. *Tokai*, Duh.
Tokai gris de Hongrie. *Tokai blanc.*
Hungarian Tokay.

Vitis *uvâ parvâ, acino rotundo, minimo, rubescenti.*

The appellation *gray*, being most appropriate as conveying a more correct idea of the real appearance of the fruit, I have here adopted it in preference to the specific term *white*, by which it is most generally designated in this country.—Duhamel distinguishes it by the single term Tokai, thereby conveying the idea of its being the one so termed *par excellence* and in preference. The leaves of this vine are rather deeply five lobed, and bordered with large teeth, their upper surface is very smooth, and the under side is covered with a slight whitish down. The bunch is about three to four inches in length, and is formed of small berries of a rounded ovate form, and of a grayish red hue. The flavour is rather pleasant and saccharine, and it is used by some persons as a table fruit. It is this grape which is said to form the largest propor-

tion or basis of the vineyards in the country so celebrated for the excellence of the wines it produces.

BLUE TOKAY.—Pr. Cat. No. 145.

Tokai bleu. *Tokai, Haute Pyrennèes.*

This is one of the most vigorous and strong growing vines with which I am acquainted; it is also very productive. The fruit ripens with me about the 10th of September; the berries are purple, of moderate size, their taste and flavour tart and sparkling, with that peculiar *gout* which I fancied bore a strong similarity to the famed wine of that name: it is not a pleasant fruit for the table. I have also had the Tokai de Hongrie noir to produce fruit with me the two past seasons, the berries of which are of oval form. I have besides the Tokai bagnol, Tokai de Lunel, &c.

FLAME TOKAY.—Pr. Cat. No. 147.

Flame-coloured tokay. *Rhenish.*
Lombardy. *Brick.*

The leaves of this vine are much more divided than most other sorts, and the upper surface is of a deep green hue; the berries are round and of a bright red or flame colour, the bunches are regularly formed, and are stated by some authors to attain to the weight of six or seven pounds. It is said to be sometimes called in England the Rhenish grape; but this title and that of Tokay illy apply to it, if it came originally from Lombardy, as one appellation would indicate.

There is no doubt it is synonymous with some other of the described varieties cultivated in French collections, but no author has yet arranged its synonymy. It is possible that it may be the same as the Malvoisie-rouge-d'Italie; but never having compared them myself, I have no means of deciding, and therefore barely hazard the conjecture as to that point.

LACHRYMA CHRISTI.

Lacrima Christi. *Raisin de Vésuve.*

This is the variety that produces the celebrated wine, which bears the first title given above. The famed vineyards which produce it are planted on the volcanic remains, composed of the residuum of the lava which has for ages flowed from the crater of the celebrated volcano of Vesuvius, after having been decomposed by subterranean fires. I am not acquainted with the particular character of the fruit, and it is only during the present year that I have been able to procure genuine vines of it. It is said that the vine is a native of and peculiar to Naples.

A neighbour of mine has a vine which he received from Austria under this title, that produced fruit the summer of 1828; the berries were of a black colour. My own vines, which were received from a different and much more direct source, have not yet produced fruit.

RED MALMSEY.—Pr. Cat. No. 27.

Malvoisie rouge d'Italie. *Malvoisie rouge du Po.*
Red Italian malmsey.

This is a vine of most vigorous growth and flourishing appearance; the fruit is dark red, of round form and suitable for wine, and is also considered a valuable table grape.

WHITE MALMSEY.—Pr. Cat. No. 26.

Malvoisie blanc du Po. *Merrisie?*

This grape is white and of an oval form. It is placed among the wine grapes in the French collections, but I presume will be also deemed worthy of cultivation among our table varieties. It has been much used in some districts for making wine, and mingling in vineyards with other varieties. The grape described as the Malmsey muscadine, or Malvoisie

musquée by some English authors, and stated to resemble the Royal muscadine, is a totally different fruit, and must be only a variety of the chasselas, and quite probably may be synonymous. Some English authors have also placed the Cioutat, or Parsley-leaved chasselas, as synonymous with this, which is a greater error still, as there is no affinity whatever.

MALVASIE.—Pr. Cat. No. 294.

This variety matures its fruit here about the 20th of September, which is white and of oval form; being of late introduction, the vines produced only some weak clusters the present season, insufficient to decide upon its merits. It is cultivated in France mostly as a wine grape.

MALMSEY MUSCADINE.

Malvoisie musqué.

I mention this separately for fear of error, but I presume it will prove synonymous with some other already described. It is said to have considerable resemblance in appearance to the white chasselas, but to have a smaller leaf and cluster, with fruit sweeter and more highly flavoured. This vine is stated to have been originally brought to France from Montserrat, and to be a favourite in the vineyards about Turin. It is a most important grape at Madeira; and it is said that Madeira wine of fine quality cannot be made without it, it being the essence or syrup grape for the wines of that island.

LENOIR.—Pr. Cat. No. 50.

This variety was obtained from Mr. Lenoir, who resides on the high hills of the Santee river, and is supposed to have been raised by him from seed, which must have been that of a foreign vine, as this is a variety of the foreign species. It is of very vigorous growth, and produces small black fruit which ripens there in July and here in August, being one of the earliest grapes; the fruit is handsome, rich in saccharine mat-

ter, and never rots, even in that hot climate. It is not a great bearer; but if it is a seedling, it may change in that respect with age. Mr. Herbemont has made wine from it, which resembled Burgundy. This gentleman has also in his vineyard a grape he calls the Lafitte, which was brought by General Wade Hampton from the vineyards of Mr. Lafitte, and was then stated to be the variety from which the claret bearing that title is made. He has also a large white grape, which he calls Malmsey, not knowing its real name; it is beautiful in appearance and very excellent for the table, and it also makes superior raisins and never rots. Another white grape of very large size, which he calls, for want of the real title, Bosc, after the celebrated French professor of that name: this has not succeeded as well with him as the others. Also an exquisite grape that yields abundantly, and is green when ripe, which was brought from France by General Davy, when he was our minister there. He has another he calls Deodata, which is a very rich white fruit; it came from the Luxembourg collection with the one called Bosc, but the true names of both were lost.

LE MONASTEL,—MOUNASTEOU, Duh.

Vitis *feracissima; acinis nigris, cute crassâ, foliis maximis, &c.*

The fruit of this vine is mediocre in point of quality, as well as the wine which is obtained from it. The vine is very productive, but not of as great durability as the most part of the vines cultivated in Provence, in consequence of which they have established a proverbialism in the district where it is cultivated, that "*this vine makes the father laugh and the son weep.*" I presume this description of Duhamel refers to the vine called Mounesten in my catalogue No. 211, under which title I received it from France.

PLANT D'OOURUEOU, Duh.

Plant d'Auriol.

Vitis *uvâ pergamplâ; acinis nigris, maximis, densis, &c.*

The leaves of this vine are almost entirely smooth, both

above and beneath; its bunches are large; the berries also large, black, and closely set. This grape should be used as soon as it is ripe, the delicacy of the skin not allowing it to be long preserved.

L'ARAGNAN, Duh.

Raisin de chien. *Rin dè chin.*

Vitis *uvâ magnâ; acinis oblongis, submagnis, pellucidis, &c.*

The bunches produced by this vine are rather large; the berries elongated, shining, and tender, with but little flavour; nevertheless the wine it produces is very good. It has acquired the titles given above as synonymes, on account of dogs eating it in preference to others when they pass through the vineyards.

PLANT DE VENEOU, Duh.

Vitis *uvâ perampla, acinis rotundis, carnosis, subalbidis et serotinis, cute crassâ.*

This variety is pretty common in the vicinity of Aix, especially in the northern part of that district. Its fruit is late at maturity, and produces bunches of rather large size, with round whitish berries that have a thick skin.

LE ROUSSELI, Duh.

Vitis *precia; uvâ amplâ, acinis rubris, magnis, rotundis, densis, cute tenui, &c.*

This is one of the first vines to vegetate in the spring; the grapes which it produces are large, round, and of a reddish colour, very closely set on the cluster—they are sweet and have a thin skin. It attains to maturity in favorable latitudes at the end of September, and is one of the most estimable grapes both for the table and wine, but the delicacy of its skin renders it necessary to gather it promptly, as it would soon rot.

PLANT DE SAINT GILLES, Duh.

Vitis *maximâ, uvâ subampla, acinis, nigris, minimis, rotundis, &c.*

This vine shoots vigorously and becomes very strong; its bunches are large; the berries black, round, and small, possessing a sweet and agreeable flavour. This variety is cultivated at Saint Gilles, in Languedoc, upon the river Rhone, and produces excellent wine that will keep a long time.

PALOMINO COMMUN, Duh.

Vitis *uvâ mediâ; acino nigro, molliusculo, subdulci, et subpellucido.*

This vine differs from the Listan-commun in its leaves, which are not of so dark a green on the upper side, and are less downy beneath; by its smaller cluster composed also of smaller berries placed less closely. It is cultivated in the Spanish vineyards, and particularly at Xérès, at Rota, and at Paxarète.

MANTUO CASTILLAN, Duh.

Vitis *acinis raris subrotundis, intensè viridibus, duris, serotinis.*

This is one of the varieties cultivated in Spain, and next to the Listan-commun, its fruit is the most esteemed at San-Lucar for eating, and the clusters when suspended will keep a long time. The berries are nearly round, firm, and of a greenish colour. They distinguish in that country many sub-varieties of the Mantuo, one of which produces violet coloured berries.

TINTILLA, Duh.

Vitis *uvâ sublaxâ; acinis parvis, rotundis, nigris.*

The leaves of this vine are slightly wrinkled, covered beneath with white and close down, they are five lobed and bordered with medium indentures. The bunches are composed of small berries, not closely set, and very succulent, yielding a very black juice of a peculiarly sweet flavour, rather insipid,

with a little sharpness. It is this variety which yields the famous Rota wine, known under the title of Tintilla de Rota. It is also employed for the purpose of giving colour to the must of other grapes, of which it is intended to make red wines; it forms a sixth part in the Malaga wine.

MOLLAR NOIR, Duh.

Vitis uvâ magnâ, acinis magnis, rotundis, mollissimis, nigris, sapidis.

The leaves are a little wrinkled and have a reddish hue at the time of expansion, and are afterwards of rather a clear yellowish green colour, and are covered beneath with a profusion of white down. The bunches are pretty large, somewhat irregular, composed of roundish and very obtuse berries, which are black, with a very thin and delicate skin. This vine, which is cultivated in the Spanish vineyards, has also a sub-variety, that only differs in respect to the colour of its berries, which on the same cluster are black, red, reddish, and some quite white. It appears in this respect to resemble the striped Aleppo grape.

BENADU, Duh.

Spart, of Languedoc.

Vitis uvâ mediâ; acino subrotundo, duro, dulci et vix sapido, &c.

The leaves of this vine are somewhat rounded, very slightly lobed, and of a moderately dark green hue. The bunches are of medium size, composed of roundish berries, which are set very closely to each other. There is a sub-variety called the Gros-benadu, which is distinguished by its berries being half as large again with a harder skin, and with flesh that is more soft and insipid.

These varieties are cultivated in Provence, and are known there by the name I have adopted, but in Languedoc they are called by the title given as a synonyme.

MOUSTARDIE, Duh.—Pr. Cat. No. 212.

Saure, of Languedoc.

Vitis *uvâ mediâ ; acino subrotundo, saturatè violaceo.*

The leaf of this vine is not a very dark green, divided into five deep lobes, the centre one of which is much the largest and most projecting. The bunch is of medium size, composed of pretty large rounded berries, of a deep violet or nearly black colour. The vine is very productive, and furnishes a very deep coloured wine. It is called by the name adopted in Provence, and by the synonyme in Languedoc.

BOURBOULENQUE, Duh.

Frappade.

Vitis *uvâ parvâ, acino subrotundo, rufo, duro et dulci.*

This vine, which is also cultivated in Provence, has small three lobed leaves, bordered with numerous teeth, which renders them almost frizzled. The bunch is small, composed of roundish berries, of a reddish colour and of a firm consistence, and of a very sweet flavour without insipidity. I have a black variety in my collection, called *Bourboulenque noire.*

GRÉ ROUGE, Duh.

Vitis *uvâ crassâ, acinis subparvis, et subrotundis, rubescentibus.*

The foliage of this vine is of a delicate green, and the leaves are deeply divided into five lobes, the middle one of which is far larger than the others. The bunch is thick, composed of berries set pretty closely to each other, which are round and of a reddish colour.

Near the village of Cornillon, in the French department of Gard, there is a vine of this kind whose trunk had attained in 1824 the size of a man, and whose shoots spread out in every direction on the branches of a large oak. This single vine has produced in one season three hundred and fifty bottles of a rose coloured wine of pleasant flavour.

ROCHELLE NOIRE, Duh.—Pr. Cat. No. 232.

Faigneau. *Vigane.*

Vitis *uvâ nigro, rotundo, molli.*

The leaves of this vine have very long petioles, of a fine green on the upper side, white and downy beneath, divided into five lobes, the principal ones of which are of greater depth than the others, and doubly indented on their edges. The bunches are composed of rounded berries of a black colour. This vine is common in the vineyards of the west part of France, where it is known by the two titles given as synonymes. There is a variety called by the same name, and cultivated in some districts, whose berries are of oval form. (See Pr. Cat. No. 270.) Both kinds are in my collection.

ROCHELLE BLANCHE, Duh.—Pr. Cat. No. 349.

Vitis *acino albo, rotundo molli.*

This is a variety of the preceding, differing only in the colour of its fruit, which is white.

FOLLE BLANCHE.—Pr. Cat. No. 287.

Rochelle verte, Duh. *Sauvignon vert.*
Enrageat. *Meslier vert.*
Uni blanc, of Provence. *Roumain.*
Blanc-verdet.

Vitis *acino rotundo, albido, dulco-acido.*

The leaves of this variety are of a pretty dark green on the upper surface, covered over with an ash coloured down beneath, and divided into five unequal lobes; the bunch is of medium size, composed of closely set berries, which are of very pleasant flavour when at perfect maturity, with a soft skin. The crop of this grape is in general abundant, and the wine produced by it is reputed to be very advantageous for the pur-

pose of making brandy. It is extensively cultivated in the vineyards of Languedoc.

ROCHELLE BLONDE, Duh.

Vitis *acino rotundo, albo, dulco-acido.*

This appears to be merely a subvariety of the preceding; its foliage differs, however, in being only three lobed and of a much paler green colour, and the fruit also presents the same difference, being much whiter than the former.

TEINTURIER, Duh.—Pr. Cat. No. 30.

Tinteau.	*Noireau.*
Gros-noir.	*Morieu.*
Teinturin.	*Portugal.*
Noir d'Espagne.	*Roussillon ?*
Alicante.	*Claret*, supposed erroneously.
Mouré.	*The Dyer.*

Vitis *acino nigro, rotundo, duriusculo, suavis saporis, succo nigro, labia inficienti.*

The leaves are divided into five lobes, which are bordered with deep teeth, and long before the maturity of the fruit they become nearly of a flesh colour; the bunches are of irregular form and terminated by a truncated cone, and are composed of round berries of unequal size, which yield by expression a juice of very deep colour. This grape is only cultivated in France for the purpose of colouring other wines, for when manufactured alone, it furnishes a harsh and austere wine of disagreeable taste. It is common in the vineyards of Orleans, and in those of Gatinois, and is also disseminated in other quarters, where it has received the various titles given as synonymes.

This grape is sometimes confused with the following, and by some writers the Teinturier and Alicant are named synonymously, and by others this has been called the Claret grape; but it seems agreed by the most eminent authors that I have perused, that this and the following are totally distinct, and St. Pierre, Rozier, Chaptal, and Duhamel all agree that this

variety yields wine fit only for dyers and for colouring other wines. Still it is possible that some of the miserable harsh wine which is sent to this country *under the name of claret*, may be the produce of this grape. The fruit ripened with me the past season about the 15th of September.

BLACK SPANISH.—Pr. Cat. No. 29.

Negrier, Duh.
Alicant or *Alicante*.
Raisin d'Alicante.
Gros noir d'Espagne.
Ramonat.
Raisin de Lombardie.
Port-wine grape.
Large black cluster.
Claret grape.

Vitis *uvâ peramplâ, acinis, nigricantibus, majoribus.*

This grape resembles the Teinturier, because its juice is equally red, but it is far superior in quality, and it is this grape from which Oporto or Port wine is made: besides the bunches and the berries are larger, and the leaves have a greater expansion. It is known in the various districts and countries where it is cultivated by a great variety of titles, as the list of synonymes indicates. In English authors it is generally described under the first and third, and the three last names stated above. It ripens here towards the end of September, and there is no doubt it is one of those to which our attention should be particularly devoted in the formation of vineyards, as port wine which is produced from it, is in such general use in our country, that the wine made from it here would be sure of a ready market. The American wine would also be far preferable to the imported, as it would be unnecessary to adulterate it by such an addition of alcohol as is added by the Portuguese to ensure a safe transmission across the ocean. The port-wine we import contains a greater portion of alcohol than any other wine brought into our country, with the exception of sherry and madeira, which do not greatly differ in that respect.

There is another grape, called in France Gros-noir of Charente, which may possibly prove synonymous with the Black hamburgh or Frankenthaler, although enumerated in some French lists. I have not yet tested it sufficiently to decide the

point. I have already remarked in speaking of the foregoing variety that this is often confused with it, and in fact the two are often called by the titles of each other even in some of the wine districts of France. I take this to be the variety from which the best claret wine is made.

GOUAIS BLANC, Duh.—Pr. Cat. No. 331.

Gouas.	*Bourgeois.*
Gros-blanc.	*Mouillet.*
Plant madame.	*Verdin blanc.*

Vitis *uvâ media, sublaxâ, acino subrotundo, albido.*

The leaf is entire and not distinctly lobed, but is bordered by a large festoon with irregular teeth; the petiole is somewhat slender, and of a grayish colour. The bunch is of medium size, formed of pretty large berries of a whitish green colour, having a little resemblance to those of the white frontignac or muscat blanc, but less closely set on the bunch.—This grape is known by a variety of names, the principal ones of which I have enumerated. It ripens about the middle of September in this latitude.

BLACK GAMET.—Pr. Cat. No. 32.

Gamet noir.	*Chambonat.*
Gamé noir, Duh.	*Saumorille.*

Vitis *uvâ mediâ, acino nigricante.*

This grape yields almost universally very abundant crops. In certain districts of France and in particular expositions, it enters largely into the composition of the best wines. In other places the cultivators extirpate it from their plantations. Every point in this variety denotes a vigorous vegetation; its leaf is thick, of a dark green hue, bordered with large festoons whose edges are irregularly indented, but not divided into distinct lobes. It ripens here before or about the middle of September, is exceedingly hardy, and of the easiest culture.

GOUAIS NOIR.—Pr. Cat. No. 64.

Petit gamé, Duh. *Noir.*
Gueuche noire. *Verreau.*

Vitis *uvâ mediâ, sublaxâ, acinis vix dulcibus, nigerrimis.*

This grape is known in the different districts of France by the various titles given above; it resembles in the form of the bunch and of the berries the Morillon of Burgundy, but it has neither the same flavour nor same sweetness, and it is of much blacker colour.

MANSARD, Duh.

Le Damour. *Le Grand noir.*
Le Vert gris.

Vitis *uvâ amplâ, pyramidatâ, acino majori, nigricante.*

The leaf of this variety is large, thick, of a deep green, and bordered with slight indentures in comparison to its size; the bunches are very large and of a pretty regular pyramidal form, and it is not uncommon for them to attain to nine or ten inches in length, and to four or five in breadth at the base; the berries are large and set moderately close.

MARLEAU, Duh.

Le Languedoc. *Le Troyen.*
Le Coq. *L'Ardonnet.*
Le Cahors. *Le Balsac.*

Vitis *uvâ sublaxâ, acinis nigris, quasi villoso-sericeis.*

This grape is of a beautiful velvetty black colour, and the berries are set moderately close on the cluster; the leaf is lobed, and is remarkable for the delicacy and irregularity of the indentures on its edges. Its shoots denote a great deal of vigour both by the size of the wood, and by that of the eyes or joints. It is known by a great number of appellations in France, as the list of synonymes given above denotes.

LOUXTENDRÉ PECOUÉ, Duh.

Raisin a grappes molles.

Vitis *uvâ mediocri et oblongâ; acinis rotundis, minutis, dulcibus, &c.*

The bunches of this vine are of oblong form and not very large, the berries are small, and round, and have an agreeable flavour; the skin is thin and dotted with reddish points; the peduncle which supports the cluster is rather soft than woody, and it is from this circumstance it has received its titles.

TIBOUREN—TIBOULEN, Duh.—Pr. Cat. No. 240.

Antiboulen.

Vitis *uvâ minutâ, acinis mediocribus, nigris, rotundis et raris, cute crassâ, &c.*

This vine derives its name from that part of Provence, where it is the most particularly cultivated, which is Antibes, at Marseilles. Its fruit, which is one of the earliest among the black and red varieties of grapes, is very sweet. It yields a wine slightly coloured, very saccharine, and which becomes sparkling by keeping, but requires a great deal of attention to preserve it. This variety would be very productive, if the blossoms were not subject to the blight or *coulure*. The berries which mature are very distant from each other on the bunch, which renders its culture but of little profit. The wine it produces scarcely ever enters into the commercial sales, as it will not bear transportation; the proprietors of French vineyards therefore who make it with care, keep it for their own use.

PLANT DE RAGUSE, Duh.

Ragusa grape.

Vitis *minuta; uvâ parvâ; acinis albido subfulvis, rotundis, &c.*

This vine, which is very remarkable on account of its long bunches, was brought from Ragusa to Marseilles, by M. D'Herculés. An excellent pale wine is made from it in France, which has much reputation and is sought after even by foreigner s

PLANT SARDOU.—Duh.

Vitis *acinis albidis, magnis, subrotundis, et densis, cute tenui, &c.*

This is supposed to have been introduced to France from the island of Sardinia; the berries are whitish, round and rather large, and very closely set on the cluster. In favourable climates it ripens from the fifteenth to the twentieth of September. The delicacy of its skin renders it subject to rot.

LE GOMBERT, Duh.

Vitis *acinis albidis, subfulvis et dulcibus, cute crassâ, &c.*

The branches or shoots of this vine have their joints very near to each other, and are of a reddish colour. The fruit is white, and of an amber hue on the sunny side, and has a pleasant taste.

LE RIN BRUN, Duh.

Vitis *acino nigro, rotundo, molli.*

This vine throws out a great deal of wood, and the joints are very near each other. The grape is black, round, and soft, and is subject to detach itself easily from the bunch as it approaches maturity, which arises from the delicacy of its skin, which is but slightly attached to the peduncle.

RAISIN BARBAROUX, Duh.

Raisin Grec.

Vitis *uvâ perampla; acinis rufescentibus maximis, rotundis, &c.*

This grape, which ripens in warm climates at the end of August, and here about the middle of September, is equally good for wine as for the table, but it will not keep long and easily rots.

BROWN, or CHOCOLATE COLOURED—Pr. Cat. No. 8.

This was received from France about thirty years since;

the vine is of very vigorous growth, and a great bearer, and seems to suit our climate well, and to be very hardy; the fruit is oval, of a sprightly flavour, and the bunches large and shouldered; it is an excellent wine grape, but in this vicinity ripens late, the period of maturity being at the end of September. Dr. Vandevere of this island, whose zeal in the vine culture is well known, has had some extremely large bunches of fruit from vines of this kind.

VERDILHIO.—Pr. Cat. No. 110.

Verdelho.—Lond. Hort. Soc. Cat.

This is well known to be the grape which gives strength and body to the wines of Madeira, and is generally considered the best wine grape of that island. It may rather, in point of ripening, be considered an early fruit. I received this, the Nigrinho, the Tinta, and the Violet from a wine house of high repute in Madeira, and they stated to me, that these were the finest grapes known there for the making of wines.

VIOLET MADEIRA.—Pr. Cat. No. 108.

This vine, which I received direct from Madeira, is one of the most hardy I know of. It has withstood our severest winters unprotected and uninjured. It is also very productive, and the fruit is of a pleasant vinous flavour.

This vine also suits the climate well in this vicinity, and flourishes exceedingly in all seasons. I have never seen any appearance of unthriftiness, or of inclination to mildew. I consider it as a most valuable grape for vineyards, and I doubt not it is one of those which form the basis of the fine vineyards of Madeira.

Thomas McCall, Esq. of Georgia, stated to me that a vine which he received from me of this kind, made a shoot in one season eighteen feet long fifteen feet of which was perfect wood and the remainder immature. He also stated to me that he considered it a beautiful fruit, and that he deems it a superior

wine grape. In the season of 1828, the first year his vine was of any size, it produced a second crop, one of the bunches of which was nearly ripe when the frost came.

TINTA.—Pr. Cat. No. 112.

Negramole. *Negra molle.*

The fruit of this vine is rather oval and of a purple colour, the taste and flavour pleasant and sparkling. It ripens here about the 20th of September, and is consequently one of those which succeed well; the bunches are shouldered and divided; the leaves five lobed and indented on their borders and downy on the under side—they also become tinted with purple as the grapes advance to maturity. I consider it as different from the Teinturier of France, although some writers have supposed it the same. I received a number of the vines direct from Madeira, and have them now in full bearing in my vineyard. This is the principal grape of which the far-famed Tinta Madeira wine is made, which commands a higher price than the kind in general use, and I think it one of those which may be relied on for success in vineyards formed in this latitude; and in fact, so far as my experience has tested them, the vines of Madeira seem particularly adapted to our climate, and I do not recollect a failure of any of them. It would therefore without doubt be of great advantage to obtain all the fine varieties from that island, as there are probably many which we do not yet possess.

BLACK MADEIRA.

This grape I received direct from Madeira; it produces abundantly, and is one of those that agree best with our climate; the fruit is very juicy and of a pleasant flavour, and seems well calculated both for wine and the table; it ripens in August. This vine I have found to be so nearly allied to the Meunier as to present no specific distinction, and I only mention it here to give place to the remark, that having received

it from that island, seems to prove that this grape is also one of the varieties which, united, produce the Madeira wine.

PURPLE MADEIRA.—Pr. Cat. No. 109.

This is a small pale purple grape, loosely set on long bunches; they have a vinous perfume and flavour when ripe, but the taste is not pleasant, and they are not suitable for the table.

HERBEMONT'S MADEIRA.—Pr. Cat. No. 113.

This is an excellent grape either for the table or for wine; the latter has been sold in South Carolina for two dollars per gallon before it was five months old. The vine is vigorous and an abundant bearer; it is remarkable on account of the young branches having white spots on them, as if a white pellicle had been partly peeled off.

I received this variety from our distinguished fellow-countryman, N. Herbemont, Esq. of South Carolina, who has given us such elaborate and interesting communications relative to his experiments in the vine culture. He states that he has not been able precisely to trace its origin; but supposing it from some circumstances to have come from Madeira, he has called it by that name until the true one is ascertained. The excellent wine made from this grape is called "Palmyra," by Mr. Herbemont, being the name of his plantation, where probably the first wine was made from it in this country.

WARRENTON.—Pr. Cat. No. 36.

This grape I also received from T. McCall, Esq. of Georgia, who informed me that it was originally obtained from Madeira. The foliage is of a light green colour; the juice of the grapes is white, and although the fruit has no peculiarity in its taste, still the wine is of an exquisite nut flavour, similar to that of a fine hiccory nut, a circumstance which proves that the flavour of the wine does not always follow that of the fruit. It

ripens its fruit in Georgia from the 10th to the 25th of August; the berries are round, of moderate size, and nearly black, and are set pretty close on the bunches, which weigh about five ounces each. The wine becomes of an amber colour, is less strong than Madeira, (doubtless because that has so much brandy mixed with it) and is of exquisite flavour.

Mr. Mc Call says that he deems it a very valuable variety for wine; and his knowledge and general intelligence on the grape culture are too well known not to be highly appreciated. It obtained its present name from its being cultivated in Warren county, Georgia.

ADLUM'S MADEIRA.—Pr. Cat. No. 114.

This, Mr. Adlum states, he obtained for the true Madeira grape, a title which has been often inadvertently applied, and one in nowise definite, for on that island there is a great variety of grapes of every colour and quality; this vine grows luxuriantly, but is not very hardy; the berries are dark purple, grow on long clusters, and are not pleasant for the table.

ROUND VIOLET MADEIRA.

Under this title I have received some vines from my esteemed correspondent, T. McCall, Esq. of Georgia. I am not acquainted with the particular properties of the variety, but I know it must have valuable qualities, or he would not have sent it to me.

MONSTROUS VIOLET.

This vine I received from France under a title entirely erroneous; I have, therefore, adopted the above name, not knowing the true one. It is of very vigorous growth, forming very large and strong shoots; the berries are of very large size and round; greenish white until they attain towards the period of maturity, when they change to a light violet colour. Their appearance would induce the expectation of their being a fine table fruit, but they are, in fact, quite the

contrary, being harsh and austere in taste, and of no use except for wine. It is a grape of such marked character, that I think its true name may be soon discovered.

L'YVERDUN BON VIN.—Pr. Cat. No. 127.

Liverdun. *L'éricé noir.*
Liverdon des Voges.

This grape, a native of Yverdun, Canton of Bern, Switzerland, flourishes in the most unfavourable situations as to soil and exposure. It is extensively cultivated in the north of the department of Meuse, (France) lat. 49 deg. 30 min. and also in the department of Meurthe. Even on the north side of hills, where no other grape will succeed, it is said to produce abundantly in seasons when other kinds are blighted. The berries are of a dark purple or black, of oval form, and of an agreeable flavour, and about the size of the Burgundy. Its wine is considered of a secondary quality, but is far superior to the harsh Spanish wines which are so much used here. I have had this grape under culture for six years, and have found it to be very hardy; indeed, I have never protected it, and it has been invariably uninjured. I consider this grape, and the other vines from Switzerland, and those from the vicinity of Mentz, lat. 50 deg. 10 min. where the Rhenish wines are made, as decidedly the best to be cultivated in the eastern states for the purpose of making wine. As for indulging the expectation, that the grapes of the south of France and Italy will flourish to the north of New-York, it is sacrificing the plainest deductions of reason to an ephemeral indulgence of fancy.

RED SWISS.—Pr. Cat. No. 136.

This grape I received from the vicinity of Lausanne, in Switzerland. It is represented as a very good wine grape, ripening early, and yielding in that country great and regular crops in unfavourable situations.

BLUE CARTAGER, Gibbs.—Pr. Cat. No. 116.

This is a wine grape received from Vienna by Col. Gibbs, of this island, to whose politeness I am indebted for this as well as many other varieties received by him from the same quarter, to which I have added his cognomen. It is said to yield the best Hungarian wine, and is deemed by the gentleman above referred to as very suitable for vineyards in the western states. From this grape is made the Bunda or Osen wine, and by a particular process, the Munster tokay wine. It is of vigorous growth, and often forms shoots of great length: the fruit ripens about the 20th of September.

FELDLINGER.—Pr. Cat. No. 120.

The fruit of this celebrated Rhenish vine ripens with me the 20th September; the berries are round or a little oval, whitish, with a slight tinge which gives them a gray appearance. It is a native of the department of Bas-Rhin, in France, and succeeds well on the borders of the Rhine.

OLWER.—Pr. Cat. No. 129.

Ollwer.

This vine succeeds best in a warm exposure; the wine made from it has attained celebrity in the northern departments of France, near the Rhine, on account of its use, being considered a preventive against the gravel. Whether any other pure wine would not have quite as much effect in this respect, amateurs will determine for themselves. It is much cultivated in the north of France, and I imported two thousand vines the last spring from the borders of the Rhine.

FACUN—BURGER—BOURGER.—Pr. Cat. No. 119.

L'Allemand. *Facon blanc.*
Weisser Burger.

The fruit of this vine is white, replete with sweet juice.—The vine yields abundant crops, and is very extensively cultivated in the vineyards on the Rhine, where it is highly esteemed. It is very hardy, of easy culture, and calculated to suit this climate, and possesses the advantage of succeeding in strong as well as light soils. The wine is also stated to be perfectly fit for use the first year.

RED BURGER.

Bourger or *Burger.* *L'Allemand, le rouge.*
Facon rouge. *Rother Burger.*

This is also cultivated in the same vineyards as the preceding, but differs from it in the colour of the fruit, which, as its name denotes, is red. There is another variety, called "Thal-Burger."

ROTHE HINTSCHE.—Pr. Cat. No. 139.

Hinsch, or *hintsch.* *Rhein hintsch.*

This has dark coloured fruit, which is of oval form; and in the Rhenish vineyards where it is much cultivated, the crops yield abundance of wine. It is a hardy variety, ripening here in September.

PETIT RAUSCHLING.—Pr. Cat. No. 133.

Rauschling, le petit. *Ortliebscher.*
Kleine rauschling. *Kni-perlé.*

This is one of the most productive varieties of the grape, and is very extensively cultivated on the Rhine, where it is much esteemed. The fruit is white, round, about the size of

the Pineau, and of pleasant vinous flavour. It is one of those vines which are least affected by the changeableness of the weather, and is consequently well calculated for vineyards in climates subject to great variations in this respect. It will succeed in almost any soil, and yields wine fit to be drank the first year. In consequence of its great celebrity, I obtained it at different periods and from various persons, by whom it was sent me under different names, which I have now arranged in the list of synonymes.

GROS RAUSCHLING.—Pr. Cat. No. 134.

Grand rauschling. *Rauschling, le grand.*
Grosser rauschling.

This is one of the vines most extensively cultivated in the Rhenish vineyards, and particularly those of the northern part of France bordering on the Rhine. It is very hardy and of easy culture, grows vigorously, and yields large crops and abundance of wine. It is one of those best suited for vineyards in this latitude.

VICANE.—Pr. Cat. No. 311.

Vicane.

The berries of this vine are white and of oval form. It is a native of the French department of Charente-inferieure, and is extensively cultivated in the French vineyards situated near the Rhine.

RIESSLING.—Pr. Cat. No. 137.

Clairette de Limoux. *Kleiner riessling.*
Petit riessling, *Rischling.*

This is also one of the varieties which form the major part of the vineyards in the north of France on the Rhine, and is cultivated also near Limoux, in the department of Aude; the fruit is white, the vine very hardy, of easy culture, and it is one of those that succeed the best among the kinds that have been introduced to this vicinity.

RIESSLING, LE GRAND.—Pr. Cat. No. 138.

Grosser riessling.

This is a variety of the same class as the preceding; the fruit is of larger size, and the vine is cultivated in the Rhenish vineyards with the former, but I believe it is not as much esteemed.

The information that has been given in regard to the ten celebrated Rhenish varieties last described, has been derived from the highest possible source, being communicated to me by the proprietor of one of the most extensive vineyards on the Rhine, whose culture has been eminently successful, in consequence of the very judicious selections he has made in respect to the varieties of vines. It is therefore with the fullest confidence that I recommend them to my fellow-citizens, as calculated to succeed for vineyards in this latitude, and probably still further north. In addition to these, my Rhenish friend states that the Morillon, or Pineau noir, the Pineau blanc, Pineau gris, and Auveras rouge clair, succeed admirably in the Rhenish vineyards, and with the ten foregoing varieties, form the basis of the fine vineyards of that section of country.

I have at least given a pretty strong proof of my firm opinion of the success of these fine varieties in our country, having imported the last spring above thirty thousand vines, of these kinds alone, which are now in my nurseries.

WHITE CONSTANTIA.

Under this name I have a vine received from Paris, which has produced excellent fruit. The berries are white, of oval form, the flavour and taste resembling the chasselas. It grows vigorously, and bears well. Thomas McCall, Esq. of Georgia, to whom I sent a vine, pronounces it a beautiful fruit. I do not consider the name above stated as its true title, and therefore, although the fruit is excellent, I omitted it in my catalogue. The true name will probably be discovered by com-

paring it with the other varieties in my vineyard, as soon as they all produce their fruit.

VIOLET CALABRIAN.

Under this name I also received a vine from Paris, which I have omitted in my catalogue for the same reason as the preceding one. The fruit, however, being good, I on that account notice it here. The berries are large, of pleasant flavour, violet colour, and they ripen during the month of September.

BORDEAUX PURPLE.

I have omitted this vine in my last catalogue from a supposition that it was probably a synonyme. It was imported about ten years since by Miles Smith, Esq. of New-Brunswick, (N.J.) from Bordeaux. Some of the scions were presented to me, and they produced a dark purple grape, of pleasant vinous flavour, arriving at maturity early in September, and for want of the real name, I gave them the title at the head of this article. The vine is hardy, and the fruit bears a great affinity to the Pineau family.

ELLIOT'S LARGE WHITE.

Mr. Smith, of Burlington, (N. J.) places this among the foreign grapes, and so I have always considered it, but in a description recently received, it is stated to be a native vine. I think there must be some mistake in this latter supposition, and perhaps the vine is not the genuine kind. I have not myself seen the fruit, but it produced fruit with a correspondent in Salem, Massachusetts, the present season, which, however, owing to some cause, did not come to maturity.

GRAPES CULTIVATED IN THE CRIMEA.

Extracted from travels through the southern provinces of the Russian Empire. By P. S. Pallas, Counsellor of State to the Emperor of Russia.

Shira-Isyum, a large mellow fruit of an oval form and deep green cast when reared in a moist soil, but approaching to white in dry situations; it has an uncommonly thin skin, and yields a great deal of juice; this grape matures sooner and is more productive than any other of the Crimean vines, it is used for wine and is a pleasant table grape, it corresponds with the Aspirant or Verdal of the French, and the Grüne Junker of the Germans.

The Kakura-Isyum, is, for the excellence of its juice, the most distinguished grape of all Crim-Tartary, to which and the three succeeding species, the wines of Sudagh and Koos, are chiefly indebted for their superiority; the clusters are large and rather loose, the berries are oval, mellow, and very sweet, of a yellow or greenish hue, with a bloom of pearly white; it has some resemblance to the Riessling of the Germans.

Terrgüllmek, the berries are small, of a yellowish pearly white, very thin skin, and uncommonly sweet.

Myshket, this resembles the great Riessling of the Germans, it has loose clusters, and moderately large berries of a round form, and of a speckled brown colour, they have a strong muscadel flavour and are as sweet as honey.

Shabash, this vine grows very strong, with short joints of a reddish brown colour, it grows rapidly and bears a profusion of grapes, the berries are sometimes as large as a crow's egg, of a greenish colour with a white bloom, thin skin, and when housed in October, will keep till February, and by keeping acquire additional sweetness.

Khadym-Barmak, or Lady's Finger, this vine grows strong with short joints, the clusters are large, the berries are white and formed like the last joint of the little finger; ripen early; the flesh is firm and very sweet.

Arsakhi, or Goat's Teats, the finest and richest of all the Crimean grapes for table use, the clusters are frequently two spans long, the berries are the thickness of a large finger, and upwards of an inch and a half in length, tapering towards the end, though obtuse; they are of a greenish yellow colour, the flesh is firm and adheres to the skin, the wood is strong with short joints, the old stocks stand erect like trees, the fruit may be preserved to a late period of winter.

The Balaban-Shabash, or Great Shabash, is perhaps the largest grape growing in the world, the wood is strong with short joints, the clusters are not very large, the berries hang closely together of a perfectly globular form, and are equal in size to the English walnut or Madeira nut; the flesh is firm, of a pale greenish yellow, covered with a chalky white bloom, the taste though rather watery is sweet and pleasant, the trunk frequently attains the size of a man's thigh.

The Kirmisi-Misk-Isyum, or Albura, is a muscadel grape of a beautiful coral red, strong growth and long twigs, the under side of the leaves is marked with strong red veins and a very fine downy velvet, the berries are round and of an agreeable muscadel flavour.

The Asma, a vine with lofty branches, is much cultivated in the Crimea, and is used in making the wines of Sudagh and Koos, and along the whole southern coast; of all the vines, it produces the tallest and strongest stems, the branches of which are trained to poles and frequently climb above the trees, its leaves are large and coarse to the touch, of a dark green colour, the under side has a velvet-like roughness, the clusters are

large and weigh several pounds, the berries are also large and of an oval form, of a dark brown colour with a blueish bloom.

Tanagos, a luxuriant species of vine with a large stem and branches, and produces fruit in great abundance; the clusters frequently weigh from six to ten pounds, the berries are round and of a brownish red colour, the skin is thin, the fruit though watery, is of pleasant flavour and may be preserved a long time; this, as well as a large proportion of the Crimean grapes, has the under side of the leaves downy.

Pallas says, the grape is an indigenous production abounding in the mountainous parts of the Crimea.

There is a great variety of other foreign vines, whose characteristics being less known and not defined with sufficient accuracy, I am unable at present to give details in regard to them with the requisite precision, and therefore am compelled to defer noticing them until they have been sufficiently tested in my experimental vineyard; I will, however, at the end of the present work give a complete list of all I have under culture, in order to afford those who are desirous of an opportunity of obtaining information from time to time, in relation to the merits of any of the varieties, omitted at present to be described.

Among the vines which may be deemed objects of particular interest and curiosity, one may be mentioned that is now flourishing in the garden of Sir Joseph Banks, which was obtained from a park near Berkeley, (England,) where young shoots are found annually springing up among the grass from old roots which still possess life, and which are the remains of an ancient vineyard. The produce of this vine will be of much interest, from its making known to us one of the kinds of grapes planted in British vineyards in former ages, and it is hoped the particulars on the subject will before long be made public, as the vine has probably produced fruit ere this.

AMERICAN GRAPES.

The varieties of vines which properly come under this head may be divided into several classes, arising from the peculiar circumstances of their origin, viz.

Vines of original native species.
Varieties of original native species.
Varieties obtained by admixture of native species.
Varieties obtained from seeds of exotic grapes.
Varieties obtained by admixture of foreign and native varieties.

Although some of these classes are already numerous, others are yet very limited, and from the short period of time that has elapsed since the public attention and that of intelligent connoisseurs has been particularly drawn to the subject in such a manner as to elucidate the various points, and to obtain precise information, it is yet impossible to form a definite arrangement of all our varieties. The perfection of this desirable object must therefore remain for future labours; but it is to be hoped an end so desirable will not be lost sight of by the amateurs of the vine throughout our country, and that each will, by developing the various points which fall within his notice, contribute his mite towards a perfect arrangement of the various classes, a precise nomenclature, and a knowledge of the peculiar qualities of the respective kinds.

ISABELLA.—Pr. Cat. No. 385.

Gibbs' grape.

Vitis *labrusca, v. Isabella.*

This grape is said to be a native of South Carolina, and was introduced to this state by Mrs. Isabella Gibbs, the lady of George Gibbs, Esq. of St. Augustine, who then resided at Brooklyn, Long Island, and in honour of that lady has been called Isabella Grape. It is a dark purple fruit, of a large size, oval form, and juicy, and equals some of the secondary European

grapes; and for vigour of growth, and an abundant yield, exceeds any other yet cultivated in this country, and requires no protection during the winter season. General Joseph Swift informed me, that a single vine in his garden produced above eight bushels during several successive seasons. In some instances vines have been stated to have produced a still greater quantity, and large vines of this kind, producing astonishing crops, are now to be met with in various parts of our country. There is no grape which will yield a greater quantity on a given space, or that can be made more lucrative in cultivation for market than this kind.

It also promises to take an important stand in this country for the purpose of making wine, as it possesses the requisites to insure success in making wine of a fair quality, or for making brandy equal to that of France. I have made wine from it of excellent quality, and which has met the approbation of some of the most accurate judges in our country. Indeed, this grape, of which but a single vine existed in any garden in 1816, and which I, at that time, met with in the possession of the gentleman before mentioned, and deemed worthy of notice and a name, has now become disseminated to the remotest parts of the Union, and has been sent to a number of the countries of Europe, and to Madeira, &c.; and although it has never been offered to the public as on an equality with the highly cultivated and delicious table grapes of France, still it offers to any one who chooses to plant it, a plentiful crop of pleasant fruit, without requiring from him the least care, or needing in winter the least protection, however cold may be its situation. I have also ascertained that the bunches may be dried, as raisins, with the greatest facility, and that they may be preserved in dry sand, sawdust, or any other similar substance, for many months, in the most perfect state.

In regard to pruning, which to a certain degree is advantageous with all vines, it has been remarked in relation to this, that if the vines are much trimmed at the summer pruning, the fruit is very apt to rot and fall of.

A peculiarity exists with regard to several of our native varieties, which is particularly exemplified in the Isabella; it is that of being twice-bearing, or of producing a second crop of fruit on the shoots of the same year, which is frequently the case with this vine; but the grapes seldom attain to maturity, unless in a season when the autumnal frosts are long protracted.

WHITE SCUPPERNONG.—Pr. Cat. No. 398.

Scuppernong. *Roanoke.*
American muscadine. *Hickman grape.*

Vitis *rotundifolia.*—Pursh.

The most perfect account of this grape that I recollect to have seen, is from the pen of James G. Hall, Esq. of Currituck, North Carolina, and published in Vol. IX. No. 18, of the American Farmer; and as this grape is more particularly cultivated in that region of country, I give some remarks, extracted from his communication, in preference to my own.—This grape (he states) is a native of the north-eastern part of North Carolina, and grows spontaneously on Roanoke Island and its vicinity, and formerly was called the Roanoke Grape; but, as its excellence as a wine grape was first tested at Scuppernong, the grape has obtained that name abroad. The particular excellence of it is the richness of the grape, and the longevity and hardiness of the vine. The vines in North Carolina are never pruned, and receive little attention otherwise. If they were pruned, and properly attended to, he considers that a far greater abundance of fruit would be produced. The grape is round, white, very sweet, and of a good size; the latter circumstance depending much on the vigour of the vine. They are pleasant for the table, and contain a large quantity of saccharine matter, so happily united with the acids of the fruit, as to render them finely flavoured for the palate and highly prized for wine. It is the opinion of many intelligent persons, that the Scuppernong, or Roanoke wine, has a richness and a peculiarly fine flavour unknown in the foreign wines which reach this country.

The shoots of this vine are very peculiar on account of the grayish appearance of the bark, and for their delicacy and smallness; but they are produced in such profusion, and are so thickly covered with foliage, that where the vine is left without pruning, the fruit is almost totally obscured from the sun. The leaves are smooth, light green, and very shining, not lobed but regularly indented; they are small compared with those of most other vines, seldom exceeding two and a half to three inches in the greatest diameter, and in fact it may be said that the whole aspect of the plant is of a peculiar character, bearing no resemblance to any other species. The blossoms expand in June, and later than those of any other vine I am acquainted with; the berries, which ripened with me the past season for the first time, were as round as a bullet, of a light green hue even when at full maturity, and of the size of the largest chasselas; the skin is very tough and rather thick; the seeds green; the juice is abundant, very sweet and pleasant, and of peculiar flavour, and when ripe entirely free from any pulp. It is a pleasant fruit for the table, and judging from the skin, I should suppose it could be kept a long time in perfection for eating. The clusters are never large, but very numerous; the berries are very loosely and separately set, which greatly aids their perfect maturity. The fruit did not fully ripen with me the past season until the 15th of October, but the vines had been left without pruning, and the clusters were hidden from the sun. I think by judicious pruning, and by training the branches separately, so that the fruit would be more exposed, it would ripen much sooner.

This vine may be readily distinguished from the black variety by the colour of the tendrils, which are green. All its advantages considered, it promises, at no distant day, to form the basis of innumerable vineyards in different sections of the country. I have not, however, hitherto considered it as suitable for this latitude; but I am now fully convinced that it may be cultivated here also with success, though I scarcely think it would ripen its fruit sufficiently early much further to the north.

Some persons have claimed both this and the Isabella as foreign varieties; hereafter perhaps we shall hear of foreigners claiming our lakes and our mountains, which they might do with quite as much justice.

It is a dioecious species, and in order to obtain crops it is necessary to have vines of both sexes; from inattention to pursuing this course, many persons have failed in obtaining fruit, and have therefore asserted that their vines were barren without taking sufficient pains to examine into the cause.

I have received from a Virginian correspondent, the following descriptive remarks concerning a vine in his possession, and as they evidently refer to this variety, I give them here:

"The wood is smooth and remarkably hard, rarely exhibiting that shaggy appearance of the bark usual with most other vines; the bark of the old wood is of a light iron colour, that of the young wood is of a brighter hue, marked with small specks of grayish white; the leaf is finely indented or serrated, and highly glazed both above and below; it is tough and durable, remaining attached to the stem until the hardest frosts. The berry is of a greenish white colour, the skin of a satin like texture, varied by minute chocolate coloured dots. It is pulpy, but easily dissolves in the mouth, and is of a honey-like sweetness and musky flavour and scent. The berries are congregated in bunches of from two to six each, the weight of the largest being eighty grains and the smallest forty grains. The vine is a great grower and abundant bearer; its flowers have no odour; and it ripens its fruit here (Virginia) the last week in September. The fruit differs from the Black Scuppernong only in respect to colour."

GREEN SCUPPERNONG.

Green muscadine. *Wild green muscadine*

Vitis *rotundifolia, var.*

This was sent me from the interior of the state of Georgia, it may prove to be different from the white variety, but it is quite probable also it may be synonymous with it, as the fruit of that is of a greenish hue.

BLACK SCUPPERNONG.—Pr. Cat. No. 399.

Purple scuppernong ? *Bull grape.*
Red scuppernong ? *Bullet grape.*
Muscadine. *Bullus.*
Bullace.

Vitis *rotundifolia, v. nigra.*—Michaux.—Pursh.—Torey.

I have not seen the fruit of this vine; but as it is produced from the seeds of the other in far the greater proportion, it may justly be considered as the primitive species, and the fruit no doubt is of the same form and possesses the same qualities, with the exception of the colour, which is dark red or purple, and in some cases black. The tendrils being purple easily distinguish it, without seeing the fruit; the foliage is also of a darker hue and the leaves much less in size than the white variety, but resemble it in other respects. I think it quite probable that there are several distinct varieties of the Scuppernong with coloured fruit, as the descriptions of different persons vary as to the colour. In North Carolina the purple or dark variety is by some people preferred to the white, and is far more generally cultivated there, being that from which the wine is mostly made. The greatest weight of any berry of either of these varieties that I have seen noticed, was of one produced at Washington city, which weighed 82 grains; but it is probable that berries of greater weight have been produced in its native state and elsewhere.

The wood of the different varieties of the Scuppernong is very hard, which is doubtless the cause why they do not grow as readily from cuttings as the generality of other vines; for in most instances those who have pursued this course of culture have met with a total failure. From this circumstance the plants are more scarce in the nurseries than other native kinds. The vines of this species spread their branches to a great extent; and I have been informed by a gentleman residing near Newbern, North Carolina, that those cultivated in that vicinity, are planted thirty feet from each other. As the flowers of this species expand nearer the period at which European vines produce their flowers than is the case with our natives generally, it offers great advantages for obtaining hybrid varieties by admixture of the pollen.

There is one remark in respect to seedlings obtained from this grape that I can make from experience as well as from the statements of others, which is, that one plant only in about fifteen or twenty will be of the white variety.

In regard to the Bullace, which is a synonymous title for this grape, but which I think is often applied equally to the other varieties of this species, a lady correspondent at Cheraw, South Carolina, makes the following remark:—"There is one kind of Bullace which I formerly cultivated and thought a delightful fruit. The vine is about twenty miles distant from this place, and from neglect the fruit has become small and is not yet ripe (Sept. 4th.)"

AMERICAN BLACK MUSCADINE.

Purple muscadine. *Muscadine.*
Wild muscadine. *Bullace.*
Bull, and Bullet grape.

Vitis *rotundifolia, var.*

This vine is a variety of the same species as the preceding, but not of equal quality. It and the succeeding variety are

frequently met with in Virginia, but the natural locality of the preceding one is further to the south. This is by some considered a tolerable fruit, and contains much more saccharine matter than the Sloe, which is probably the original species; the berries are black, and a correspondent states that they are marked here and there with white specks, which are not observable in the Sloe variety.

SLOE GRAPE.

Vitis *rotundifolia, var.*

This vine, which is probably the original whence the improved varieties of its race have emanated, is inferior to all the others enumerated. The fruit is sour and scarcely eatable, and of a dark purple or black colour. Dr. Norton remarks to me that this and the preceding variety are to the White and Black Scuppernong of Carolina, what the Hughes' crab apple is to the Golden pippin. I have two varieties which differ in respect to size.

BLACK OVAL MUSCADINE.

Vitis *rotundifolia, v. ovata.*

This I received from a friend in Georgia. It is no doubt a variety of the native muscadine, and will be interesting on account of the form of the fruit, as so few of our native vines produce oval berries. I have also received a vine under the same name from Tennessee.

TENNESSEE ISLAND GRAPE.

An intelligent correspondent informs me that he thinks from information he has received, the vine called as above in Tennessee, will prove to be the best native grape of that state, and he has in consequence commenced cultivating the vines. He has not himself seen the fruit; but as the tendrils of the vines are different in colour, he expects the fruit will differ also and prove to be of two varieties, purple and white. This vine derives its appellation from the circumstance of its growing

wild and in great abundance on the islands in the Tennessee river, and my friend has furnished me with the following details. The vine is stated to be naturally of dwarfish habit, a great bearer, and to produce fruit of good size; the leaf resembles the Scuppernong or native Muscadine, and the stock that of the common small grape. He values it the more particularly, because no insect troubles the foliage, although other vines are much injured by the green caterpillar, which often destroys their leaves in toto. He mentions that the oval and round black muscadine grapes grow naturally in that state, as well as some other varieties.

I expect the vine above described will prove to be of the Scuppernong family, and it is quite probable it may be the genuine Scuppernong already described as a native of North Carolina, comprising the white and black varieties which are distinguished by their tendrils.

ALEXANDER.—Pr. Cat. No. 372.

Schuylkill muscadel.
Spring Mill constantia.
Cape of Good Hope grape.
Tasker's grape.

Vitis *labrusca v. Alexanderia.*—Prince.

This vine is a sure and plentiful one in its crops. It has been erroneously called, at the Spring Mill vineyard and at Philadelphia, the Constantia, or Cape of Good Hope grape, but is unquestionably a native of our own country, and originated in the vicinity of Philadelphia. It is stated to have been first found growing on the rocky hills near the Schuylkill river, above the upper ferry, previous to the revolutionary war, by a Mr. Alexander, gardener to one of the Penns. The berries are black when fully ripe, sweet, and of a slight musky flavour, but contain a pulp. Wine of a fair quality has been made from this grape in different sections of the Union; and Mr. Adlum, of the District of Columbia, and a number of other gentlemen, have succeeded in making from it wine of quite a pleasant flavour. I have also in my pos-

session some wine made from it several years old, which is of very agreeable flavour, but not equal to that I have obtained from some other native varieties. This vine was largely cultivated by Mr. Tasker, whence it received one of its titles.

It seems proper here to remark, that Mr. Adlum makes a distinction between the Alexander or Schuylkill muscadel, and the Spring Mill Constantia. The leaves, he states, are very similar, but a difference exists in the appearance of the clusters of fruit, the latter being the handsomest; both have a pulp, and the Alexander has a little of the Fox grape flavour, but the Spring Mill Constantia has not any of it; it is sweet, without any musky flavour. Mr. Adlum, however, considers both as American grapes, as they most certainly are. The author has cultivated them separately, so that amateurs might gratify themselves by contrasting the two in their experiments.

CLIFTON'S CONSTANTIA.—Pr. Cat. No. 406.

Cape of Good Hope grape.

Vitis *labrusca, var.*

I should not enumerate this under a head distinct from the Alexander were it not that Mr. Adlum conceives there is some distinction. It is stated to have originated in the garden of Mr. Clifton, Philadelphia, and Mr. C. remarked that it was a chance seedling, unsown by any one. It was obtained from him by Peter Legeaux, and extensively planted at the Spring Mill vineyard; and it has been imposed on the public as the genuine Constantia of the Cape of Good Hope. It is some satisfaction to know that Americans were not concerned in this deception. It has the same qualities as the Alexander for wine, and they are generally cultivated and considered as synonymous, although it appears the two have been obtained from different vines which have *not as yet* been traced to one original source.

CATAWBA.—Pr. Cat. No. 377.

Catawba tokay. *Tokay.*
Muncy, pale red? *Red muncy?*

Vitis *labrusca, v. Catawba.*—Prince.

This is a large grape, of a lilac colour, and in some situations, covered with a beautiful bloom, giving to it a blueish purple appearance. The berries have a slight musky taste, and delicate flavour; hang loosely on the bunches, which are of good size; and, in fact, they are beautiful to the eye, very abundant bearers, make an excellent wine, and are tolerable for the table. The pulp diminishes and almost disappears when they are left on the vine until they attain to perfect maturity.

The colour of the fruit is much varied according to its relative exposition; such as is fully exposed to the sun's rays is purple, that but partially exposed is of a lilac hue, and those clusters that are completely obscured and shaded, are nearly white and the berries almost transparent; even in this latter position, where of course, the maturation is retarded, the fruit is sweet, but is devoid of that musky flavour which is acquired by that portion fully exposed to the sun and heat. It is earlier in ripening than the Bland, and the berries and clusters are of equal and often rather larger size.

Although this grape is said to be from the river Catawba, still there is much uncertainty on that point, as I am informed by Thomas M'Call, Esq. of Georgia, a gentleman now far advanced in years, that, in his boyhood he knew the Catawba from its source, to where it loses its name in that of the Wateree, and that no such grape was known there. Mr. Adlum states, that he procured it from the garden of Mrs. Schell, at Clarksburg, Montgomery county, Maryland, and that the family informed him it was called by this name by the late Mr. S. but they knew not whence he procured it. The vine in Mrs. S.'s garden has produced in one season, about eight bushels of grapes; and eleven vines belonging to Joshua John-

stone, Esq. of the same state, and which were reared from that of Mrs. S. have already produced about 30 bushels of fruit at one time. The grape called, by Mr. Adlum, Red muncy, and found by him wild in Maryland, and also in Lycoming county, Pennsylvania, proved to be very similar to this kind. Mr. A. considers this grape "to be worth all others, indigenous or exotic, as a wine grape," and that a greater variety of wines may be made from it than from any other.

ELSINGBURGH.—Pr. Cat. No. 380.

Elsenburgh. *Elsenborough.*
Blue Elsingburg. *Smart's Elsingborough.*

Vitis *labrusca, v. Elsingburgensis.*—Prince.

This grape was found near the town whose name it bears, in Salem county, New-Jersey, where it would probably have remained unregarded, had it not been brought into notice and cultivation by Dr. Hulings. It is a very sweet, juicy fruit, and of a blue colour; it is very hardy, exceedingly productive, and promises to be valuable for wine; the leaves assimilate to those of the European vines much more than those of our native varieties generally do, and in colour they resemble the Bland. The bunches are of middle size, and the berries hang loosely: it ripens at the same time as the Meunier, and is free from pulp or musky taste, and has generally but two seeds. It is undoubtedly a native, all the characteristics of which it bears. Its wood resembles that of the Isabella; but the fruit approximates more to the Meunier of France than any other American grape.

RAISIN DE COTE.—Pr. Cat. No. 395.

Of this grape, a native of Louisiana, there are two varieties, which are found through a vast extent of territory from the Attakapas to the Missouri. The variety or species most known, is dark blue and round; skin rather thick, and the

fruit somewhat pulpy, extremely sweet and not musky. The above title is one given by the French settlers in that district of country.

RED BLAND.—Pr. Cat. No. 374.

Bland's pale red.
Powel.
Powal.
Bland's fox grape.
Vitis labrusca Blanda.
Red English grape,
English grape,
Bland's Virginia.
Bland's Madeira.
Red scuppernong.
Carolina
Mazzei grape.
} of some districts of Virginia.

Vitis Blanda.

Vitis *Blandi.*—Prince.

The foliage of this vine is of a pale green hue; the bunches are shouldered or divided, and are five or six inches in length, and sometimes more. The berries are of a round or oblate form, of a pale red colour, good size, juicy, sweet, and of very pleasant flavour. In some cases they are said at full maturity to become of a dark purple or red wine colour; it is an agreeable table fruit, with a thin skin and little or no pulp, and is also a wine grape of very superior order to many of the varieties cultivated as such; indeed, a person has but once to taste this grape to form his decision on this point. It has been supposed for many years to be a native of Virginia, and its origin has been the subject of much discussion. A Virginian gentleman, whose opinion I highly respect, stated to me that it was an Italian grape, and was brought from Italy by Mr. Mazzei, and his statements had so much weight with me that I almost resigned my own judgment thereto; but I have now to aver that it is certainly a native, and that vines sent to Col. George Gibbs, of this island, from North Carolina, under the name of the Red scuppernong, have proved to be identically this same variety, and vines have also been received by others from that state which have afforded the same result. It appears, also, that this grape was cultivated in our country before Mr. Mazzei visited it, and the vines he brought,

however closely they may have resembled it, could not therefore have been of this kind.

Another fact is certain, that several native vines which I have received from different parts of our country, so greatly resemble in foliage, wood, and manner of growth the real Bland grape, that I strongly suspect further examination will identify them with it, and prove that this variety is found wild in more than one state of the Union. And even among those native varieties, whose fruit essentially differs, there are several whose foliage possesses the same general characteristics, particularly in regard to colour and form, insomuch that I doubt not but further investigation will class them under one head as the varieties of a single species, distinct from *V. labrusca*, or form them into a group of natural hybrids.

It appears that Colonel Bland, of Virginia, was among the first that brought this vine into notice and cultivation, from which circumstance his cognomen was attached to it at that time, by which title it has been most generally known since.

The original vine is said to have been found on the eastern shore of Virginia, by Col. B. who presented scions of it to Mr. Bartram, and to the late Samuel Powel, Esq. and some of the persons who obtained it from the latter gave it the title of Powel grape after him.

Dr. Norton, of Virginia, the gentleman previously referred to, and whose opinion certainly merits much weight, differs from me in the statements here advanced as to its origin, and in a recent letter makes the following remarks:—"It is hardly probable that this fruit should have escaped my observation if it was indigenous to my country, having walked so repeatedly through the forest lands in most quarters of the state, always having an eye to its productions. No such grape belongs to America, I assure you; I have found grapes resembling the Bland on the *borders of neglected old fields;* and amongst the ruins of the gardens which were established in the early settlement of the country, the Bland grape itself. The first I considered as a seedling of the Mazzei grape, but I have never

known it to equal the stock whence it came. The existence of the last is easily accounted for : I can but infer that superficial observers have furnished you with slips from one of these two sources." On my own part, I will only further remark, that in regard to the claims of its foreign origin, I think it will be quite in time to consider them, when we are presented with an imported variety resembling it.

Heretofore this grape has been deemed unsuitable for latitudes to the north of this state ; but it is now found to succeed perfectly at Boston, where, the past season, the fruit has attained to complete maturity by the last of September or beginning of October.

COLUMBIA.—Pr. Cat. No. 378.

Rackoon grape. *Raccoon grape.*

Vitis *æstivalis ? v. Columbia.*—Prince.

This grape was found, by Mr. Adlum, on his farm at Georgetown. The bunches are small, but numerous, and the berries round, deep purple, approaching to black, thinly placed on the cluster, and about the size of a small fox grape, but have not that peculiar scent which fox grapes possess. It has considerable pulp, but is quite sweet when fully ripe, and yields a high coloured juice ; in rich grounds its shoots are as strong, and its leaves as large as the Isabella, and the latter are of a brick colour on the under side.

WORTHINGTON.—Pr. Cat. No. 404.

Vitis *labrusca ? v. Worthingtonii.*—Prince.

This is a native found near Annapolis, Maryland. It is smaller than the common fox grape, and black ; it yields a very highly coloured juice, is a very great bearer, and, by some is much esteemed ; the juice has been used to mix with that of other grapes in making wine, in the same manner as the Teinturier is in Europe, to which it imparts a fine colour, and agreeable flavour. When the fruit is fully ripe, it is tolerably sweet, with a considerable degree of astringency. Mr. Adlum states, that by mixing the wine of

this kind with that of the Schuylkill grape, it imparts a character between port and claret.

MUNCY, PALE RED.—PR. CAT. No. 391.

This grape was discovered in Lycoming county, Pennsylvania, and also in Maryland. The foliage much resembles the Bland; the fruit is of a pale red colour, and hangs loosely on the bunches, which are of good size. It ripens late, is sweeter than many native grapes, and the vine is productive. It is considered by Mr. Adlum, of Columbia, quite an acquisition to our collection of American grapes, as being capable of producing excellent wine. This grape has, by close comparison, been found so similar to the Catawba, as not to be readily distinguished, which would seem to favour the idea that the Catawba did not originate in Georgia, but is, in fact, a native of Maryland. Some persons have remarked that there exists a slight difference in flavour between this and the Catawba.

BLACK FOX.—PR. CAT. No. 381.

Purple Fox. *Vitis taurina*, Walter.
Vitis vulpina, Bartram.

Vitis *labrusca, v. nigra.*—MICHAUX.—PURSH.—TORREY.

This is the wild variety most common in this state and to the north and east of it. The fruit is a very deep purple or black, generally of large size and oblate form, and the berries hang loosely on the bunch; they have a strong fox-like scent, which I think is possessed to a greater degree by this than by the red and white varieties; the skin is thick and the pulp tough, but in some cases varieties have been found wild which possess those disadvantageous qualities to a much less degree; and in some vines which have been reared from seeds or improved by culture, they are scarcely perceptible. In this section of country large vines are almost every where to be met

with overrunning the hedges and mounting trees; the berries of this and the other varieties of the same species are collected and sold in large quantities in our markets in a green state at the period when they have nearly attained their full size, and then serve to make excellent tarts and preserves, and are also used frequently for pickling.

As far as past experience has extended, it appears that better seminal varieties are obtained from this than from the red fruited kind; but further experiments may prove that this remark is not without exceptions. Although this vine makes strong shoots, and grows vigorously, extending its branches over hedges and spreading over trees of moderate size to a considerable distance from the main root, still it is considered as one distinguishing mark of the species that it never mounts to a great height, whereas the varieties of Vitis æstivalis often ascend the loftiest trees of the forest.

WHITE FOX.—Pr. Cat. No. 383.

Vitis *labrusca, v. alba.*

This vine produces large berries of oblate form, which vary somewhat in size on the same bunch; they are not perfectly white, but are tinged with a pale russet or amber colour. Although a coarse grape, yet it is a more pleasant fruit than some other varieties, and is considered by those who do not possess the finer kinds, as a tolerable eating grape. The leaves are large; the vine is of rapid growth, and produces plentiful crops.

It is believed to have afforded berries of greater weight than any other native or exotic vines in cultivation; several specimens were exhibited at York, Pennsylvania, the past year, from a vine which had been transplanted from the forest and placed near a spring, the average size and weight of which were far greater than what the vine produced in its natural state. One of the larger berries weighed 153 grains, another 162, and a third 164 grains, and the latter measured three and three-eighth inches in circumference.

From such variations produced by trivial attention, it may justly be inferred that this variety may be subjected to far greater melioration and improvement by proper attention to its culture, &c. and by the production of seminal varieties.

RED FOX.—Pr. Cat. No. 382.

Vitis *labrusca, v. rosea.*

The fruit is large, of oblate form, and of a brick red colour; it has a hard pulp, and not a great deal of juice, but is very odorous or musky; it makes the most exquisite confectionary, in the form of jelly—this is made with an equality of sugar, the fruit being strained to separate the skins and seeds (water with it of course)—it must then be evaporated slowly, until of the proper consistence; the flavour of the jelly is rich and delicately musky.

Professor Gimbrede has reared several varieties of this grape from seeds, some of which are of very large size, and others sweeter than the common variety; the whole class, however, is deficient in high vinous properties.

BAUCHMAN'S RED FOX.

Vitis *labrusca, v. rosea maxima.*

This vine I received from C. Bauchman, Esq. of Pennsylvania, a gentleman who possesses a great fund of information in respect to the different varieties of grapes, their culture, &c. and who has, in connection with his friend Jacob B. Garber, Esq. of the same state, rendered me great aid on important points, with regard to the respective qualities of our native vines, and the success attending vineyards in that state, &c.

The fruit of this vine is of remarkably large size, measuring frequently above three inches in circumference. In its flavour and colour it resembles the common red fox.

TEXAS, DIVERSE LEAVED.—PR. CAT. No. 402.

Vitis *diversifolia*.—PRINCE.

I have received a species of grape from the border of Texas, which I have named as above, on account of the very great variation in the form of the leaves, a part of which are simple, others three lobed, and some five lobed; they are also very downy on the under side. The person who sent it states, that they do not run much to vines, but grow about three or four feet high, and then bend over and fall to the ground; and that they produce a great abundance of very good grapes.

Having cultivated this vine two seasons, I have found it to be less inclined to form long shoots than other native varieties; one shoot, however, has attained to eight or nine feet in length. The vines being small and weak when received, they have not yet produced fruit, but I anticipate having fruit next year.

I have also some vines, the seeds of which my correspondent writes me, "were procured from the north-west pass of the Rio Grande, or Rio del Norte, in Texas, five hundred miles west of St. Antoine, and one thousand from Natchitoches." He states that they grow in abundance on the Rio Grande, and are tolerably large and fine flavoured.

TEXAS, CURIOUS FOLIAGE.—PR. CAT. No. 401.

Vitis *diversifolia, var.*

This vine I received from a source different from that of the other Texas variety I have described. It bears much resemblance to that in its dwarf growth, but differs in foliage; the fruit I have not yet seen. My correspondent, who sent this kind, remarks thus, in a letter recently received—"Instead of the Texas grape being sour, as I described it heretofore, the better opinion seems to be that it is a large, slightly reddish fruit, very juicy, sweet, and with little or no pulpy coherence, of

course a good table grape. In the prairie country of Texas, where it abounds, the old grass is annually burnt off, and the vine shares the same fate; in the spring season it shoots out of the ground from the old roots very luxuriantly, and falls all round upon the ground, borne down by the multitude of its fruit."

MISSOURI.—Pr. Cat. No. 390.

Missouri seedling.

Vitis *Missouriensis.*

The fruit is as sweet as the Meunier, and has not more seeds; its appearance is similar to the Elsingburg. Some of the grapes of that region have been found to have a superabundance of seeds, from which this is free. This vine may, by culture, prove a valuable acquisition.

LONG'S ARKANSAS.—Pr. Cat. No. 386.

Vitis *Longii.*—Prince.

This grape, which was found by Major Long on or near the Rocky Mountains, possesses foliage so very peculiar, as to distinguish it from all others I have seen. The leaves are deeply indented on the edges, and of singular appearance, bearing some affinity to those of the Scuppernong, but three or four times the size; the wood rather delicate in point of thickness, but surpassing every other, except the Vitis riparia, in its rapid growth, and overrunning every thing in its vicinity. The fruit, however, is small, sour, very full of seeds, and will not bear a comparison with the Missouri and other American grapes. This, the Isabella, and the Elkton, are considered to be the best to use as stocks to ingraft on.

LUFBOROUGH.—Pr. Cat. No. 388.

Vitis *labrusca, var.*

This is a fox grape, found about two and a half miles from Georgetown, district of Columbia. It is larger and better than the Elkton, and has a very rich appearance. The berries are quite large, colour dark purple, and juice very sweet, with the flavour common to fox grapes; the pulp, however, dissolves in the fermentation, as is the case with many other varieties, and it makes a very good red wine.

ELKTON.—Pr. Cat. No. 379.

Vitis *labrusca, v. Elktoni.*—Prince.

A very large native fox grape, of a deep purple colour, with beautiful crimson coloured juice; the fruit quite fragrant. It has much pulp, but has been considered by some as capable of making good wine, though I do not know that the experiment has been yet made with it separately.

PELL'S ILLINOIS.—Pr. Cat. No. 405.

Vitis *illinoensis.*—Prince.

This is a native sent me by the Hon. G. T. Pell, of Illinois, and which he states "in unskilful hands has made good wine." It was found wild in the prairies of that region. I have received from the same gentleman seeds of several varieties found on the borders of the prairies, which are now growing in my garden. Among these is a variety of the same species as the preceding one, but which he states differs from it in the form of the bunches, they being shouldered like many of the foreign kinds.

MUNCY, BLACK.—PR. CAT. No. 392.

Vitis labrusca, var.

This was found on the same farm as the pale red Muncy, it is a very productive vine, but the fruit being harsh and unpleasant, is not considered worthy of cultivation, though it is possible, that wine made from it might become meliorated by age, and at all events it might answer as a substitute for hock wine.

NORTON'S VIRGINIA SEEDLING.—PR. CAT. 393.

Vitis Nortoni.—PRINCE.

This very distinct variety owes its origin to Doctor D. N. Norton, of Virginia, whose assiduity and devoted attention to the culture of the vine for a period of years place him among the distinguished connoisseurs of the subject. It was raised from the seed of the Bland, which fructified in the vicinity of the Meunier or Miller's Burgundy; there exists, consequently, some probability that it is a hybrid between these two. In appearance the vine much resembles the former of the two, to which its foliage closely assimilates.

The shoots are strong and vigorous, and of a red colour. The vine resists the cold of the most severe winters, never failing to produce fruit and that most profusely, thriving even without pruning, and requiring, at most, but a partial use of the pruning instrument, and almost equalling the Isabella in its rapid extension; like that vine it is also well calculated for arbours, bowers, large espaliers, &c. The fruit is of the darkest purple or black colour and ripens in September, but will remain on the vine with a great increase of the saccharine principle (as is the case with the finest wine grapes of France) until the end of October in this latitude, and until the first of November in Virginia. The bunches are usually

eight or nine inches long on the old and strong vines, and weigh about a quarter of a pound each; the berries begin to form a conical bunch on the stem at a distance of several inches from the place of its attachment to the wood; they are round and a little flattened at the end, and about the size of the Meunier; they do not contain a great quantity of juice, but what they yield is of the richest quality; the skin is replete with a violet coloured matter, which imparts to the wine a shade equal to the Tinto Madeira, which last it resembles as well in taste as in appearance.

In conclusion, I will state a remark of Dr. Norton, to whom I am indebted for the most part of the foregoing description, that "for the purpose of making wine, this is hardly to be excelled by any foreign variety."

YORK MADEIRA.—Pr. Cat. No. 407.

It certainly is a pitiful course for Americans to be continually adopting foreign titles for the natural productions of their own soil. It would seem to indicate a total unbelief in the value of our indigenous productions, which I trust is but seldom the case, for I had hoped that the period at which we undervalued the blessings which Providence has showered on our favoured land had long since passed away. I cannot refrain from giving place to these remarks from the great confusion and misconception which is caused on all sides by this false nomenclature, and I propose that the foreign titles be dropped in every case and appropriate ones substituted.

This vine, with the foreign title of Madeira, is a genuine native, and proves, on examination, to be the same as the Alexander, or Schuylkill muscadel. It is very extensively cultivated in the vineyards in the vicinity of York, Pennsylvania, and it is this kind which is at present relied on in those vineyards for a crop, but the native variety called there the Claret, and the fine native Catawba, are expected by some of the most intelligent cultivators of that locality to take precedence and supersede the variety first named.

YORK CLARET.

Vitis *labrusca, var.*

This is also a genuine native, but has been erroneously called Claret grape. It is cultivated in the vineyards near York, Pa. where it is much esteemed for wine, and its culture is fast extending there and elsewhere on account of the high value in which it is held, it being generally preferred to the Alexander.

It differs from the Alexander in several respects: the vine is smaller in its parts, though of a more flourishing appearance, the foliage is of a darker green, and it retains its verdure later in the season than almost any other vine; the bunches and berries are smaller than those of the Alexander, and the latter are more closely set on the clusters, and the produce of the vine is more abundant. When perfectly ripe it is without pulp and very replete with sweet juice, which is nearly as dark as a Morello cherry. It is thought by the cultivators at York to agree better with the climate than any other, and the general opinion seems to be, that wine of a very superior quality may be made from it. When perfectly ripe the fruit is as fine for the table as the better part of our native kinds, with the exception of the Catawba, Isabella, and one or two others.

YORK LISBON.

Vitis *labrusca, var.*

This is also one of the varieties cultivated in the vineyards of York bearing a foreign title, and has considerable affinity to the Alexander, but the grape is larger and a little elongated; and the pulp is more acid.

It also differs in being a coarser and more pulpy fruit, and in possessing more of the fox flavour, and it is inferior to that for wine and the table. The plant is also of larger and more vigorous growth than either that or the Claret above described. It is found to be a sure grape in its crops, and is much cultivated in the vineyards referred to.

HERBEMONT'S ARENA.—Pr. Cat. No. 373.

Arena, of Herbemont.

This I received from the gentleman whose name it bears.—It was called by him Arena, on account of its being a native of sand hills, that being the situation where it is found wild in South Carolina. It makes a very excellent red wine, which is thought by Mr. Herbemont to be the very first in rank among American wines made of native grapes. It improves greatly by age, and when sixteen months old has been much approved by amateurs; and at an exhibition of wines by Mr. H. to the Agricultural Society of South Carolina, it received their encomiums and was pronounced a very superior wine.

JORDAN'S LARGE BLUE.—Pr. Cat. No. 38.

Jordan's blue.

I arranged this vine in my catalogue among the exotic varieties, as such I judged it to be from casual observation of the foliage. Mr. Smith, of New-Jersey, however, thinks differently, and enumerates it among the native varieties; I therefore give the account of it which I received from him. He states that it was brought to New-Jersey from New-England by Richard Jordan, Esq. that it is a large blue pulpy grape growing in large bunches, and that it is said to have yielded wine that was preferred by the Agricultural Society to Madeira. My original vine was obtained from the same source, whence the above description proceeds. I have not yet myself seen its fruit, but shall have a crop the present year, which will afford an opportunity of giving a final decision as to its foreign or native origin. The leaves of my vines greatly resemble those of the foreign varieties; and as it is possible that an er-

ror may have been committed at the time of receiving the original plant, I have obtained several others to compare with it.

MORRIS' SEEDLING MALAGA.

Large Blue Seedling from the White Malaga.

This vine was reared from a seed of the White Malaga by the lady of Richard Hill Morris, Esq. of Pennsylvania, and from the sportive character of the species produced blue fruit. The berries are large and rather closely set, and it is an excellent table fruit.

COOPER'S WINE.—Pr. Cat. No. 39.

This grape I am informed by Caleb R. Smith, Esq. of New-Jersey, is a native of that state, where it was first introduced to notice by Joseph Cooper, Esq. The vine is of vigorous growth, and produces abundantly; the berries are round, of a medium size and purple colour, and those which are ripened in the most favourable situations are tolerable for eating, its particular value however is for the purpose of making wine. By an inadvertency it was placed in my catalogue under the head of exotic vines, but I presume it is justly entitled to be considered a native.

CARTER'S FAVORITE.—Pr. Cat. No. 376.

The foliage of this vine has much similarity to the Bland; the fruit I have not yet seen, but it is represented as a valuable grape by my esteemed correspondent George Carter, Esq. of Virginia, who has concentrated at his seat in that state a great variety of the most choice and rare vines, exotic as well as native, besides a very large collection of other fruits. Mr. C. does not state that it is positively distinct from all others, but leaves that point to be determined by experience.

DENNISTON GRAPE.

The first notice of this vine I received from Isaac Denniston, Esq. of this state, and I give a description recently received in his own words.

"The native grape which I before mentioned I had accidentally become possessed of, was first known to me about seven years ago. It was found on an island in the Hudson river about thirteen miles below Albany, a person who had discovered it in bearing, afterwards brought the vine to my son-in-law Dr. Elliot, and I planted it in my garden. It produced grapes the size of the Isabella, and I think it a much finer table grape than that. The pulp is similar to the Isabella, the colour yellowish red, and it has a little of the musky taste, and when ripe is uncommonly fragrant. The vine is luxuriant and a great runner. Being indigenous and hardy, it of course does not require to be protected. I have no name for it, nor have I ever heard of any vine in this part of the country, of the same or of a similar character." Mr. D. further remarks that in removing his vine he lost it, and therefore gratulates himself that he had previously presented some young vines to other persons, which prevented the extinction of the variety.

HENRICO.

I received this vine from Virginia, where it was found growing wild in the county, whose name it bears. It is represented as producing berries the size of the Bland, and clusters of half the size; the colour pale blue or purplish, taste sweet and agreeable.

CUNNINGHAM.——WOODSON.

Two varieties of native vines have been sent the past year from Prince Edward county, Virginia, under the above titles, and are now under experimental culture in the garden of a gentleman possessing much information on the subject, and

who will fully test their merits—they are both represented to produce fruit as large as the Bland, but to be no wise like it in other respects, being superior in productiveness and flavour, and are also said never to mildew or rot. The former of these varieties has been formerly designated as the "Prince Edward" grape; but two varieties having been found in that county, the person who sent them adopted the titles which head this article, by way of distinguishing them.

MILLINGTON'S WHITE.

This vine was discovered in Missouri by Dr. Millington of that state. It was found north of the Missouri river—the fruit is of good size, very juicy, and rather tart, and the skin is thin, each berry generally contains three seeds.

SOLANDER'S LARGE PURPLE.—Pr. Cat. No. 400.

This grape is highly esteemed in Missouri, whence I received it. Having possessed it only a short period, I have not yet seen its fruit; but from the description I have received, I presume it will be among the most valuable of our natives.

SWATARA.

I have received from my respected correspondent, John Weidman, Esq. some vines of a variety, distinguished in his vicinity by the above title. He considers it as distinct and worthy of attention. From the same gentleman, I have also received vines of a red fox grape, which he states is more sweet than the common blue variety.

HYDE'S NATIVE BLACK.

This vine is from the vicinity of Catskill, and was brought into notice by Wilkes Hyde, Esq. on whose farm it was found in a wild state. He informs me that its fruit is black, of the usual size of a pistol ball, that it has no hard pulp, but is rather astringent, it contains a great deal of juice, which is of

a dark claret colour, and which he thinks would yield a valuable wine. The vine is of very luxuriant growth and a great bearer.

HYDE'S ELIZA.

This variety was originated from seed in the garden of the same gentleman, who sent me the preceding one, where it has borne fruit for two years past. It is a flourishing vine, the fruit is of medium size, blue when ripe, very sweet and has no hard pulp, it is at maturity the last of August, and continues until the end of September. Mr. M. states that he considers it a preferable fruit to the foreign Black cluster; and that when the berries commence turning blue, it is visible only in small spots, which at first view appear like the commencement of decay, a circumstance he has not noticed in any other grape. Mr. H. remarks, that he calls it "the Eliza, because it was reared and nurtured by a beloved daughter."

SWEET SCENTED.—Pr. Cat. No. 389.

Male sweet scented. *Vitis odoratissima*, Donn Cat.—Nuttall Mss.

Vitis *riparia*, Michaux.—Pursh.—Torrey.

This is a dicecious species, and I have never yet had a vine to produce fruit, and I believe others have been equally unfortunate in this respect, for I have never seen a fruit-bearing vine in any collection. The fact is, that nearly or quite all the old vines in this quarter have been propagated from a single original vine, and they are all therefore of one sex. I have at present, however, some seedlings of one year's growth, which I consider to be of this species, and which doubtless comprise both sexes, and I shall ere long have fruit from them. Michaux says, that this species principally abounds on the shores and islands of the Ohio and Mississippi rivers, and Pursh states, that fertile plants are rarely found north of the Potowmac, but that barren ones extend far south of it.

The foliage bears considerable affinity to that of Long's Arkansas, the leaves are unequally toothed, and slightly trilobate; the flowers are very sweet, somewhat resembling in fragrance the Reseda odorata.

It is a curious fact, and indicative of the general prevalence of male plants, that neither Michaux, Pursh, or Torrey, describe the fruit of this species.

Mr. Nuttall stated to me, that the vines growing on the Mississippi, called the June grape, are of this species, which he considers the true *Vitis odoratissima*, and that the true *Vitis riparia* is a distinct species. Muhlenberg also enumerates them as distinct, but appears to consider this as *Vitis riparia*, and annexes to *Vitis odoratissima*, the name of *Bermudian grape.*

In consequence of there being no exhaustion of the sap, by production of fruit in the male variety of this vine, it grows with exceeding rapidity, and spreads out its numerous branches in every direction, soon covering a very large space so densely, as to render it in a great measure impervious to the sun's rays, and to the effects of storms. It is therefore very commonly cultivated in this vicinity, as a covering for arbours and other places, where shelter and concealment are desired.

WINTER GRAPE.—Pr. Cat. No. 396.

Chicken grape.	*Vitis serotina*, Bartram.
Frost grape.	*Vitis incisa*, Jacq.
Small frost grape.	*Vitis vulpina*, Wild.—Torrey.

Vitis *cordifolia*.—Michaux.—Pursh.—Nuttall.

This is a grape so well known, that a description may almost be deemed superfluous; the berries are round, of very small size, and loosely set on the bunches, they are of a purple colour, and so tart and astringent as to be unpleasant for eating; they are, however, supposed to become somewhat meliorated by the operation of frost, and on that account are more sought for by boys and others after they have been sub-

jected to its effects. The leaves are abruptly acuminate, bordered with irregular acute teeth, and are smooth on both sides, with the exception of a slight pubescence on the veins beneath. There appear to be two varieties differing in the shape of the foliage, one of them having the leaves much more divided or palmated than the other.

It is the latest in ripening of all our native grapes, and the fruit hangs on until late in the autumnal months, and sometimes till Christmas. The vines grow vigorously, often mounting and spreading over lofty trees, and are very suitable for forming with their numerous branches, a speedy covering where shelter is required, the foliage of the variety with palmated leaves is the most pleasing, but neither of the varieties is of any particular value, and I believe they have not yet been cultivated for any use of the fruit, which is alike unsuitable for the table or for wine, but might be used for vinegar and verjuice. Pursh mentions, that this species is found in a wild state from Canada to Florida, which opinion I presume is correct. I have received from Virginia a vine said to be of this species and to produce pleasant fruit.

GARBER'S ALBINO.

Vitis *labrusca, v. baccis albidis, magnis ovalis.*—PRINCE.

This new and peculiar variety I received from my much respected and very intelligent correspondent J. B. Garber, Esq. of Pennsylvania, a gentleman who with untiring zeal has sought to investigate the various points calculated to advance the vine culture, and to bring to view the merits of the respective varieties. The original vine was raised by him from a seed of the native variety erroneously called at York the Lisbon grape, and which is described at page 188. It is the only one out of forty or fifty plants that he has deemed really worth increasing. The vine, in its general aspect, resembles its parent, as also does its fruit in size and form; the berries are about as large as those of the Isabella, egg-shaped, and of a greenish white colour; they contain a pulp which is sweet and are a very agreeable table fruit; the berries hang loosely on the bunches, which are of good size.

The foregoing description was received from Mr. G. who kindly presented me with rooted vines and cuttings, and who very justly remarks, that as it much resembles the York Lisbon, Alexander, &c. in its growth, and yet produces white fruit of oval form, it may be considered an anomaly among the native varieties. From these considerations, and the circumstance that an *oval white* native grape has long been a desideratum, this variety is peculiarly interesting and merits to be particularly distinguished; I have, therefore, (with permission) given it the title of "Albino," to which is annexed the cognomen of the distinguished horticulturist who originated it.

GARBER'S RED FOX.

Vitis *labrusca, var.*

This was received from the source whence I obtained the preceding one, and Mr. Garber states that it was raised from the same parcel of seed (all of the York Lisbon) at the same time and in a similar manner; and that although he had not a Red fox grape on his farm at that period, it approximates so closely to that variety as to be evidently one of that class, and was the only one among the whole number of seedlings that bore such affinity. The berries are round, of the size and flavour of the common red fox, but Mr. G. thinks them something sweeter: they ripen about four to six weeks later, and their colour where exposed is a pale, greenish red, but those concealed from the sun are nearly green.

As this vine was reared from the seed of a dark purple grape, is appears probable that the pollen of the red fox variety, borne by the wind, had impregnated the particular flower by which the seed of this vine was produced.

HONEY GRAPE.—Pr. Cat. No. 384.

The original vine of this fine native variety grows about eight miles distant from Philadelphia, and was only brought into particular notice within the last three or four years. It is only with great difficulty that it can be increased by cuttings,

which renders it still scarce. The leaves are very deeply five-lobed, with irregular indentures on their borders, and the under surface is covered with down. The fruit is as sweet as the Meunier, the clusters larger, and as closely set with berries, and it is deemed one of the best native grapes of our country.

Such is the description which I have received from a correspondent who is distinguished for intelligence and accuracy, and from whom I received this vine.

NORTH CAROLINA WHITE.

A grape so entitled is cultivated in some collections, said to have been received from North Carolina, and to be entirely different from the White Scuppernong. I have not seen any one who is acquainted with the fruit, but the person who originally procured it from Carolina was informed that the berries were white and of good flavour, and that the vine was a great bearer and a native. Of the latter point, however, I have some doubts, and having only recently obtained it, have never seen its foliage, by which that fact can be readily determined.

CAROLINA.—Pr. Cat. No. 375.

This vine was sent me by a Virginian friend, who received it from Carolina as a distinct wild variety, and on that account he gave it the above name. It has since proved to be identically the same as the Bland.

KENRICK'S NATIVE.

Vitis *labrusca*, var.

I give this title to a vine sent me by Wm. Kenrick, Esq. of Newton, who having heard of an indigenous vine producing white oval fruit, has taken great pains to obtain it. Its qualities have been highly rated to him, but I omit any details until experience shall have more fully tested that point. I deem it an act of justice here to remark that Mr. K. is extremely assi-

duous in his endeavours to discover new and valuable varieties of fruits, and few persons evince greater discrimination and judgment than are shown in the written comments I have received from him on this and other species of culture. The nurseries of the Messrs. Kenrick are too well known to need particular mention here.

ORWIGSBURGH.—Pr. Cat. No. 394.

Orwigsburg.

Vitis *Orwigsburghi.*

The highest authority for information relative to this grape is that of Dr. W. E. Hulings, who named it and brought it into notice. That gentleman, at first, thought it decidedly an indigenous fruit; he now considers it only an American variety of a foreign grape; and in this latter opinion I concur, on account of the appearance of the foliage, and the general growth of the vine; the fruit is juicy and the flavour excellent. The vine is productive and is consequently very worthy of cultivation; the colour is white, the skin thin, berries larger than the Meunier, and quite sweet.

The original vine which was brought into notice, and from which the vines in the different collections have been propagated is growing in Schuylkill county, about three miles from Orwigsburgh, Pa. It is generally considered to be a seedling, and if so, it comes under the head of American varieties from seeds of exotic vines. It is nearly allied to the chasselas family, and is probably a seedling from the white variety.

The vine, although hardy, is not more so than the White Muscadine, and it is not more regular in ripening its wood, if even it is as much so. It is quite as subject to the mildew as the chasselas vines are, and requires the same precautions to prevent its effects. The fruit ripens in September, about the same time as the White Chasselas. I do not consider that it can claim any advantages over the White Muscadine, if indeed it equals that in valuable properties.

VITIS ÆSTIVALIS.—Pursh.—Michaux.—Torrey.

Summer grape. *Bunch grape.*
Little grape. *Blue grape.*
Vitis intermedia, Muhl. *Vitis sylvestris, vel occidentalis,* Bartram.

The leaves of this vine are three to five lobed, dentate on their borders, and when young are covered beneath with a russet down, that becomes less perceptible on the old leaves, which are nearly smooth, except on the larger veins; there are several varieties, one of which has the leaves very deeply lobed, and is the *V. sinuata* of Pursh and others. The *V. laciniosa*, Lin., and *V. palmata*, Vahl., are also supposed by Torrey to be referrible to different varieties of this grape, with very divided leaves. In some of our forests where the soils are rich, vines of this species ascend to the tops of the loftiest trees, their naked shoots extending from the ground to the uppermost branches sometimes 60 and 80 feet from the earth. The flowers expand the beginning of June, the berries are of small size, and globose form, of a dark blue colour, and pleasant flavour, they are rather closely set on oblong bunches, and attain to maturity at the end of August or in September—the best varieties are deemed valuable to cultivate for wine, but the merits of the greater part of them have been as yet but partially tested. Michaux, and Pursh rank this species as a native of Virginia and Carolina, but it is frequently met with in Maryland and Pennsylvania, and is not uncommon in New-Jersey and in this state. The common appellation for it among the inhabitants is Summer grape, and by them it is readily distinguished from the fox grape or *V. labrusca*, by its inferiority in size, and being unattended with the disagreeable fox-scent which that generally possesses. I have been thus particular in giving the leading characteristics of this species, as many of the varieties of grapes which I have enumerated or partially described, it was found impossible until further investigation in regard to their qualities, to refer to the

particular species to which they belong; the most part of those deficient in such reference belong either to *V. labrusca*, or *V. æstivalis*, and I should suppose that those found north of the forty-first degree, belong wholely to the former of these species, whose native locality extends as far north as Canada.

It has been remarked that a large proportion of our native vines are males, (or have abortive germs,) and are consequently sterile, and that this is particularly the case with *Vitis æstivalis*. My opinion is, that this remark will not bear a general application, and will only hold good with respect to three or at most four of the well known species, and two of these, *V. riparia* and *rotundifolia*, I think are truly dicecious.

SUSQUEHANNA.

Deininger's grape.

In regard to this vine it is unnecessary to enter into details, and it is deemed sufficient to state, that those vended by the above titles and which were much lauded at the time as a superior native variety, have proved to be indentically the French Meunier or Miller grape.

WINNE.—Pr. Cat. No. 498.

Buck grape. *Columbian.*

Vitis *labrusca, var.*

This is a native variety which has attracted attention within the last few years. It obtained the name I have adopted from the circumstance of the first vine that attracted notoriety, having been found in the garden of Mr. Winne at Albany.

The fruit is of medium size and of the darkest purple colour; when fully ripe it is generally considered equal in sweetness to the Alexander, but inferior to the Isabella. There is no doubt but it will prove a good wine grape. In all cases to test the real merits of a grape, the fruit should be left on until fully matured, and not be plucked as soon as it

has changed colour, it is from the latter course that so many of our native grapes are undervalued by persons who do not allow them time to attain to perfection. The Buck grape (so called) growing in the garden of B. D. Buck, Esq. of Connecticut, where the vine has been for about ten years past, is now considered synonymous with this, and the history of that vine is stated to be as follows: It was obtained by Mr. B. from Albany, of a person who brought it from Pennsylvania, this accounts in a rational manner for its being the same as the grape called at Albany, the Winne. Mr. B. states that the fruit of his vine is purple, the berries close set, the form more round than oval, pulp about the same as the Isabella, cluster not very large, and that it never sheds its fruit, which is in eating from eight to ten weeks, ripens in September, and hangs on the vines until destroyed by the frost. It is a great and constant bearer. This vine has been judged to have upon it at one time fifteen bushels. It has never been trimmed, and is now in a very flourishing state. From a consideration of the circumstances, a possibility arises that this vine may prove synonymous with some one of the varieties cultivated in Pennsylvania, and known there by a different name; and indeed it is supposed by some to be the same as the Alexander, which is so widely cultivated in that state. A correspondent at Albany mentions, that the berries produced by his vines are of a round form, black when at full maturity, and possess more pulp than the Isabella.

In a publication with regard to this grape, the assertion has been made, that it was brought from Bourdeaux, but that it is called a native of Albany. It is however in fact a genuine native, and bears those indelible marks of indigenous origin, which cannot be mistaken by any one the least conversant with the subject.

TROY GRAPE.

Purple Hamburgh, of Troy, N. Y.

A vine called by the second title above stated is much cultivated in the gardens of Troy; but as it is a genuine native, and the common appellation is so very incorrect and calculated to create much confusion, I have adopted a different one and called it the Troy grape. I am not certain, however, but experience may prove it to be synonymous with some other native variety. I made the following description from actual observation the past year, and think it a valuable native grape.

The leaves are smooth above and downy beneath, partially three-lobed, with slight indentures, the teeth terminating in small points; the fruit is of very good quality, and the flavour pleasant, with a little of the fox taste; the form somewhat oval, and the size about that of the Isabella, to which it bears considerable affinity. It is a very hardy, vigorous vine, produces large crops, and the fruit is held in much estimation.

NAZRO GRAPE.

This vine was originated from seed by Henry Nazro, Esq. of this state, a gentleman much devoted to the culture of the grape, the parent vine is the Troy grape which I have just described.

The seed which produced the Nazro grape was planted in the fall of 1825, and the vine has borne fruit the two seasons of 1828 and 1829. The berries hitherto produced, have been of medium size, and only about half as large as those of the parent vine, they are of oval form, sweet and of very pleasant flavour, possessing less of the fox taste, and seem in these respects to be quite an improvement on the original. Those I have eaten (and which were politely sent me by Mr. N.) had in no case more than one seed, and one berry had none.

They ripen at Troy the latter part of August. The circumstance of the diminution of seeds in this seedling is worthy of particular note, as most authors attribute such diminution to a long course of culture and a continued increase from cuttings; but here is a seminal variety, in its youth and full vigour possessing a characteristic generally supposed to derive its existence from age and exhaustion. Where now rests the basis of their arguments?

Mr. N. remarks, that although the fruit hitherto produced has been rather small, still it is probable that its size may be increased as the plant advances in age. The vine was sent to me without a name, but I have thought it correct and just to call it after the person to whom it owes its origin.

BEAVERDAM.

This variety originated in Virginia, and derives its title from its native locality. It was sent to me with several other varieties by my highly respected friend and correspondent Thomas S. Pleasants, Esq. of that state, who may be justly ranked among the most ardent friends of the vine culture. The fruit is dark purple, the berries scarcely a size smaller than those of the Bland, with a thin skin, and from one to two seeds in each; they are sweet, juicy, and slightly pulpous, and are devoid of that musky flavour belonging to the Isabella and Alexander, to which some object. The bunches are large and winged, the berries of beautiful appearance and not closely set.

Mr. P. considers it the finest native grape that has come under his notice, and states, that the original vine is such a well known favourite, that it is invariably robbed before the fruit comes to maturity, and that he has but once been able to obtain any in a perfectly ripe state. It is represented also by the people in its vicinity, to be superior to any of the wild grapes they have ever tasted, and in fact equal to most of those that are cultivated, and the owner of the original vine regards it as a treasure. It is of course not equal to the Chasselas,

and Frontignac grapes; but as an American native variety, I have no doubt it will on cultivation be deemed a most valuable grape, and the probability is, that it will make good wine. The original vine grows on a barren old field, surrounded by three trees, the effect of which must be to starve the plant and fruit. Its natural position therefore is not an advantageous one. If such be its character in a locality, where it is evidently stinted in its aliment, surely its merits may be enhanced by transplanting it to a better situation. The fruit on the original vine ripens about the middle of September, but cultivation might probably hasten its developement and maturity.

A letter very recently received from Mr. P. contains the following additional remarks, which are highly interesting:

"In the perusal of a proof sheet of your Treatise just received, I was forcibly struck with an observation you make in your description of the Bland grape, where to prove its native origin, you state that identically the same grape has been received from Carolina under the name of Red Scuppernong, and that several native vines received from different parts of our country greatly resemble it *in foliage, wood, and manner of growth*, &c. Now the "foliage, wood, and manner of growth" of the Beaverdam grape are precisely like the Bland, only that I cannot speak certainly of the appearance in putting out in the spring, not having had my attention drawn to their great similarity soon enough to determine the resemblance in that point. I did not heretofore have full faith that the Bland grape was a native; but I am now fully satisfied, and I entertain little doubt but that the Beaverdam is a variety of the same family. There is another strong point of resemblance; the bunches of the Beaverdam are, it is true, larger and longer, but in other respects they are exceedingly alike; the berries on the Bland are, we know, generally scattering, not from any deficiency of bloom, but from an inaptitude perhaps to set themselves, so that the result is, there are many stems on the bunches without fruit. This peculiarity appears also to apply to the Beaverdam. I should therefore think it

highly probable they are of the same class, and I have merely made these remarks to corroborate your views showing that the Bland is a native."

In addition to the foregoing exceedingly fine variety of the Bland family, the author has to state that a strong probability exists of the discovery of a fine *white* variety of the same class.

MARYLAND PURPLE.

This variety I received from the same source whence I obtained the preceding one. It is a native of Maryland, where it was found growing in the woods; the berries are stated to be of tolerable size, of a purple colour, and remarkably sweet and juicy, and attain to maturity in October. It was not brought into garden culture until the past year, but had attracted particular attention where growing in a wild state.—I had proposed to give to this the appellation of Pleasant's grape after the worthy contributor; but as he states that the partial opportunities as yet afforded for examination have not been sufficient to speak decisively of its merits, I decline such course in this case, but with the determination to adopt that title for one of the finest unnamed varieties in my possession, as soon as I can make the selection of one worthy of it.

LOUISIANA.—Pr. Cat. No. 387.

This title has been adopted for a vine received from the interior of the state whose name it bears. It has not yet produced fruit here, and details on that head cannot therefore be given at present.

GRISWOLD'S SEEDLING.

This vine was reared from the seed of a foreign variety by John Griswold, Esq. of Columbia county, in this state; the berries are blue, and the vine produces abundantly.

SCOTT'S GRAPE.

This fine variety was presented to me by George W. Jeffreys, Esq. of North Carolina, at the particular request of the discoverer, Gen. John Scott of the same state. In a letter received from the latter, he remarks—"The original vine grows in the woods, on the bank of a small stream; it is old and large, and runs to such a height upon a tree, that none of its branches can be lowered so as to form layers for planting. No other vine of the same variety has yet been discovered. Its fruit ripens about the first of October, the berries are round and about the middle size, skin thin, flesh juicy and delicate, and the flavour very fine. It belongs to the class of white grapes, is of an amber colour when ripe, and when used for tarts does not colour the pastry. As yet I have not been able to succeed with the cuttings, and apprehend that like our far-famed Scuppernong, and many others of our native varieties, it cannot readily be propagated in that way." I have reared about twenty fine seedlings from the above named vine, which have grown vigorously, and being now in the second year's growth, will no doubt produce fruit the ensuing season.

BAILIE GRAPE.

This title I have adopted for a fine native variety, received from Samuel Bailie, Esq. of Virginia, a friend and correspondent, to whose philanthropy and liberal sentiments I cannot render justice in any common terms. The present is one of thirteen varieties he has transmitted to me, all of which were collected in their natural localities, and whose relative merits will form an object of future investigation.

Mr. B. describes the fruit to which I have given his cognomen to be of medium size, of a red colour, and free from pulp, and considers that it will be a fine grape when brought into regular culture, to which it has never been submitted until the present year.

CLARKE'S GRAPE.

This variety was also received from Virginia, and is called after the proprietor of the plantation on which it was discovered. The original vine is very large and old, and extremely productive, the bunches and berries are of good size, the grapes ripen well, and are in perfection in August, and hang a long time on the vine. They are exceedingly sound and firm, sweet and well tasted, and the person who owns the vine, states that his mother used to have the grapes gathered in the fall and put up in a barrel, (a layer of straw and a layer of fruit,) and that they were preserved in this manner during the winter as plump and sound as when first packed away.

SMALLWOOD.

This fine native vine I received from E. Smallwood, Esq. of North Carolina, who exercises much discrimination in regard to the qualities of valuable fruits. He esteems it the most desirable variety for making wine, although he has also the White and Black Scuppernong. The fruit he remarks is about half the size of the Muscatel grape.

POND'S SEEDLING.

This is a variety raised from a seed of the Black fox grape, by Mr. Samuel Pond, of Massachusetts. Mr. P. states in a letter to me, that the bunches are long and of good size, the berries round, purple, and juicy, with a thin skin. He considers it one of the best native varieties, and states, that its growth is remarkably vigorous, with proportionably short joints. One shoot of the past season measured twenty-seven feet, and on another of the same age he counted fifty-seven joints.

GALE GRAPE.

This vine I received from Samuel Downer, Esq. of Boston, who obtained it from Troy, in this state, and informs me that

it was raised from a seed of a Smyrna raisin, by Miss Gale of the latter city. Mr. D. who has seen the fruit, represents the vine to be very vigorous and prolific, the clusters of uniform appearance, handsomely shaped without shoulders, and rounded at the top and base; the berries not quite as large as those of the Meunier or Miller grape, but of beautiful appearance, devoid of pulp, replete with pleasant juice, and set with great compactness on the bunches. Having myself examined the foliage particularly, I find it to bear so strong a similarity to the Meunier, that it is evidently of that family: the fruit I have not seen, but Miss Gale informs me that it very much resembles the Black cluster.

NASHUA.

A correspondent in Pennsylvania writes me, that he has two varieties of grapes received from the state of Maine, which are reported to be very fine, one of which is called by the above title; neither has yet fruited with him, and he is unable to give descriptions of them at this time. I make them here a subject of record to elicit future investigation.

WINDSOR.

This vine I received from our highly intelligent and spirited fellow citizen, John C. S. Monkur, Esq. Corresponding Secretary of the Maryland Society for the promotion of the vine culture. He states that it was found growing wild twelve miles north of Baltimore, at Windsor, the plantation of George Fitzhugh, Esq. It is very luxuriant, a great bearer, and has every appearance of our common chicken grape, but very far exceeds it in the deliciousness of its fruit. The clusters are large and long, the berries round, of a blue colour, in size larger than the ordinary wild grape, and replete with a grateful juice, resembling in taste the Meunier or Fromenté. It ripens there the last week in August, and makes an excellent wine.

OWENS' WHITE.

For this variety I am indebted to William Owens, Esq. of Virginia, who has favoured me with the following remarks in regard to it: the berries are very large, weighing from one hundred and twenty to one hundred and thirty grains each. It is a variety of the Fox, and possesses a pleasant degree of the muskiness common to that class of grape. Mr. Owens states, that he has discovered a number of interesting wild varieties differing in size, flavour, and colour, some inclining to green, others of a yellowish white, and one of a purple colour which is of good flavour and of very unusual size, the berries weighing from one hundred and fifty to one hundred and sixty-five grains each.

Another is an extremely rich black grape, flattened at the ends, and about one inch through its longest diameter, the skin thin, pulp a very deep rich purple, which upon the removal of the skin displays the granulated sparkling appearance that some water-melons exhibit when cut. Another is a large red grape, skin very thin, and when separated from the fruit, of a beautiful clear red, pulp solid, but sweet and musky. Another called white, but with some berries approaching a light amber, owing perhaps to greater maturity. Another, which is a variety of the summer grape, has bunches large and open, the berries of a small size, with a black polished surface, they are of exquisite flavour, and accompanied with a perfume that always reminds one of the pleasant odour exhaled by the woods in the spring when the flowers are in bloom. Mr. O. made in the summer of 1829, about nine hundred and fifty gallons of wine from native grapes, and computes the number of wild varieties of the fox-grape that he has discovered to exceed twenty, and of the summer or fall grape to exceed thirty, many of the latter differing very widely in flavour and complexion, and those of a purple or black colour in some instances covered with a blue mist or bloom, the largest measuring about half an inch in diameter. He has also met with several varieties of the winter or frost grape, and deems that some of

the varieties he has discovered may without doubt be hybrids between the respective species.

WILLIS' FREDONIA.

Jersey grape. *Guernsey grape.*

For this vine I am indebted to John Willis, Esq. of Maryland, so well known as a most skilful and intelligent amateur of horticulture, and to the title adopted I have attached his cognomen. A very particular description of the famous vine in Mr. W.'s garden was published in the American Farmer the past year. He states to me that it is now of six years growth, and spreads its branches to the extent of one hundred and twenty feet, the diameter of the main stem being only eight inches and three-eighths, and that he calculates the produce the present season will be more than ten thousand bunches. The vine is not troubled with insects, the fruit is black and pleasant for the table. Mr. W. has not been able satisfactorily to trace this variety to its original locality.

WILLIS' LARGE BLACK.

Great black muscadine.

I received this variety from the same source as the preceding one. Mr. W. remarks, that its fruit is particularly valuable for preserving, that when used for such purpose it loses the musky or fox flavour, and becomes delicious. The berries he states, are very large, often measuring three inches and one-fourth or more in circumference. The vine was brought originally from Roanoke, and represented to be of exceedingly vigorous growth. The third year sixteen shoots were allowed to grow, and when measured in autumn from motives of curiosity, the vine was found to have run in one season one hundred and ten yards. According to a traditional account of the southern Indians, this vine and the White Scuppernong have been in bearing among them for more than five hundred years; but notwithstanding this, some of the white inhabitants attempt

to trace the introduction of these natural products of the soil to Sir Walter Raleigh and Sir Richard Willis.

PERFUME GRAPE.

A native vine of North Carolina, which received the above title from the late General Jones of that state, is thus described in the American Farmer, by A. J. Davie, Esq. "The vine grows on a small island of the Roanoke, a few miles above the Great Falls. It is surely the only vine of the kind in the state, perhaps in the world, as I have had all the islands carefully examined, and another cannot be found. Its colour is purple, about one third larger than the common grape of the woods, slightly elongated, a difference in shape which distinguishes it from all others [? auth.]; in its flavour it is unrivalled, and when eaten diffuses a most grateful perfume. I prefer it to the Scuppernong. How it may succeed for wine, no one can say, but for the table it equals the best French grapes. Its fine flavour and rarity have determined me to propagate it both by seed and cuttings, and to offer them to those who wish to cultivate the finest vine of this and I believe of any country." [? auth.]

WEBB'S GRAPE.

This was discovered by Samuel Webb, Esq. of Philadelphia, near the town of Woodbury, about ten miles north of Philadelphia. The berries are large, being as he states, about three inches in circumference, and their colour black when fully ripe.

PALE RED VIRGINIAN.

This is represented to me to be a very sweet and fine grape, with little or none of the musky taste, the original vine grows on the borders of a rivulet in Goochland county, Virginia.

EARLY BLACK SUMMER GRAPE.

This is also a variety from Virginia, which state seems particularly prolific in natural varieties of the vine. The fruit ripens early, and is of good size. The esteemed friend who presented it to me remarks, that the parent vine is very beautiful, shooting out its long branches, which in the grape season present quite a striking appearance. He further comments on the difference which obtains in that section of our country, between the summer or bunch (*V. æstivalis,*) and the fox grape (*V. vulpina.*) The former is in general much milder in its flavour, and considered by many persons as very pleasant fruit. The fox always has a rank or musky flavour in a greater or less degree.

He further remarks on the propensity of the former to mount to a great height, and of the latter to seek a more humble support, as has been already stated in the previous pages of this volume.

PROLIFIC CHICKEN GRAPE.

This variety is from Goochland county, Va. The fruit is quite pleasant, and much superior to that produced by the generality of vines of the same species, and ripens in the month of August. The vine is a great bearer, whence it derives its title.

KELLOGG GRAPE.

This title I have applied to a fine variety found wild at New-Canaan, Fairfield county, Connecticut, and introduced by J. W. Kellogg, Esq. of this island. That gentleman has informed me that the fruit is of larger size than the Isabella, of purple colour, and oblate form. It is quite sweet and fragrant, with somewhat of the fox flavour, and contains a pulp. The vine grows with surprising vigour.

ADDITIONAL INDIGENOUS VINES.

I have also received from different quarters, vines of a number of varieties said to be native, but of whose merits and qualities, sufficient information is not possessed at present to give more than a list of their names. Among these are the following:—Penniman's, Thompson's, Large Blue, Large Fox of different varieties, Early white of two varieties, Sloe and native Muscadine of several varieties, &c. These have all been planted as specimen vines in my experimental vineyard.

VARIETIES FROM SEED.

In the summer of 1828, I published a circular soliciting from persons residing in the various sections of our country, the seeds of such *native* varieties of the vine as were found in their respective vicinities. I received from all quarters of the Union, considerable parcels of seeds, in some cases with short descriptions, and in others without any. These were mostly, in accordance with my requests transmitted by mail, an expense I have cheerfully submitted to as well in regard to these, as to seeds of other interesting native productions. From the various sources referred to, I have reared a numerous progeny of vines, of the most interesting of which I here annex a list, designating at the same time the State from which they were received, together with the titles and descriptions which were attached to them by the contributors.

FROM MISSOURI.

Fall grape, No. 1—being the largest and finest of its kind.
Do. No. 2—secondary in regard to the size of the fruit.
Do. No. 3—smallest fruit.
Black winter grape. White grape.

From a different source.

Black wild summer grape, ripe in October.
Do. winter do. ripe in November.

From another source.

Lowland grape, grows naturally in low ground and has very peculiar foliage.

The first three of the eight preceding varieties from Missouri, are very productive, and Dr. Millington has made eight barrels of wine from vines of those varieties in a single season.

FROM SOUTH CAROLINA.

River swamp grape. Do. very acid.

Sand hill grape, much larger than the preceding sort, and not so sour.

Do. a different variety. Bullace grape.

Garden grape.
Do, large dark purple. } two native varieties introduced to garden culture on account of their quality.

FROM VIRGINIA.

Monstrous fox grape. Large sloe do.
Maryland purple do. Beaverdam do.

FROM TENNESSEE.

Winter grape. Coon grape.
Purple native grape. Blue do.
White do.

FROM OHIO.

Hill grape of the Scioto.

FROM ILLINOIS.

Prolific grape, from the border of the prairies, two varieties.

In addition to the plants reared from seeds of the various preceding varieties, I have since taken great pains to procure scions from the *original* vines, so as to perpetuate the identical kinds that had attracted attention in their natural state, and I have succeeded in transferring nearly the whole of these scattered productions of our country to my experimental grounds, where they will without doubt, thrive and flourish, living mementos of the horticultural riches of our country.

I have also reared a great variety of seedlings from the cultivated kinds, both native and exotic; these have not yet fruited, but when of sufficient age may be expected to produce a great diversity. Among them are a number from the Isabella, a part of which are from seeds impregnated by the Bland and the Meunier; others from the Alexander, Bland, Meunier, White Rochelle, White and Red Malaga, White and Black Scuppernong, Nazro, Scott's, Troy vine, and from Gimbrede's Fox grapes of the sorts exhibited to the Horticultural Society.

GENERAL REMARKS.

I have now completed the descriptive list of American vines, as far as could be done consistently with the present state of knowledge on the subject, and the precision and accuracy required. In doing this, no vine has been knowingly described under different heads or distinct titles; but on the contrary, all the claims to a separate origin and to peculiarity of character, have been examined doubtingly, from a desire to curtail the nomenclature, and to restrain it within correct bounds. It is however very possible, and even probable, that future examinations of those kinds but recently received from such numerous sources in the wide spread regions of our land, and which have in most instances never been submitted to a comparison with each other, may by a critical investigation of the particular properties of each, prove many which are now deemed distinct varieties, to be so similar as to identify them with each other, and consequently to render it necessary and proper to unite them under the same heads.

With regard to the synonymæ, the greatest perspicuity has been exercised, and that part has been rendered as perfect as the circumstances would admit; and although future experience may considerably modify that portion of the nomenclature, the arrangement so far as at present perfected, will I think add greatly to the diffusion of a correct knowledge of the respective varieties, and to the identity of such as have been hitherto considered distinct from each other.

American species of the Vine.

In order to concentrate whatever light can be thrown on the subject matter of the present work, I have extracted the following dissertation from the Medical Repository; Hexade 2. vol. I.

Account of the Species, Hybrids, and other varieties of the Vine of North America, by William Bartram, Esq. of Pennsylvania.

The most obvious characters which distinguish the grape-vines of America from those of the old continent, are, 1. The berries of all the American species and varieties that I have seen, approach the figure of an oblate spheroid; that is, the poles are flattened, and the transverse diameter is longer than the polar: however, I have observed that Alexander's grape, and some of the bullet grapes, approach nearer to an oval or ellipsis, which is the figure of all foreign or European grapes that I have seen: viz. a prolate spheroid. 2. Most of the American species and varieties have a glaucous and yellowish pubescence on the under surface of their leaves. 3. All that I have observed in the northern and eastern districts of the United States are *polygamous;* i. e. those vines which bear fruit (female) have hermaphrodite flowers (pentandria monogynia); but the males have only five stamina, without any female organ, and are always barren. One would suppose, from Walter so strongly marking this character as to induce him to place Vitis in the class *Diœcia*, when Linnæus and the other European botanists have placed it in *Pentandria*, (he himself being an European,) that all the grape-vines of the old continent are hermaphroditous and pentandrian. I know not, from my own observation, whether the Bull-grape of Carolina is hermaphroditous or diœcious, and therefore rest satisfied with Walter's assertion.

With regard to the vine of America, I find a great difficulty in discriminating the species from varieties of hybrids, which, perhaps, may be partly accounted for from some of our vines being diœcious, and there being a greater number of male

vines than of fruit-bearing ones, whose *farina fecundans*, mixing with the air and winds, is carried to a great distance to the female organs of hermaphrodite flowers. I shall now give my opinion of the distinct species or established races from which all the varieties or mules have originated.

1st. The Common Blue Grape, or Bunch Grape, *Vitis sylvestris*, or *V. occidentalis*. This is the most common grape. The acini or berries are of the oblate figure, of various sizes on different plants, and of various tastes. Some are sweet and pleasant enough, having a musky flavour. They are nearly as large as the Burgundy grape: are black when ripe, having a glaucous bloom, like the damson plum. The leaves of this species are large: their under surface covered with a clay-coloured down or pubescence. They are tri-lobed, each lobe subdivided or dentated. Some varieties have very deep sinuosities, almost touching the mid-rib.

2d. Fox-Grape, *Vitis vulpina*, of Bartram, *V. foliis cordatis subtrilobis, dentatis; subtus tomentosis*, Linn. *Spec. plant. V. vulpina dicta Virginiana alba; Plucku. alm.* 392. *Vitis vulpina dicta acinis peramplis purpureis in racemo paucis, sapore fœtido et ingrato præditis, cute crassa carnosa*, Clayt. n. 696. The last part of the description is decisive; every word true when applied to our fox-grape of Pennsylvania; and Dr. Clayton's authority should be relied on, as he was a native of Virginia, spent his life there, and was an exeellent botanist. The leaves of the fox-grape are large and lobated, not much unlike those of the common bunch grape, but not so deeply sinuated and toothed; their under surface thickly covered with a yellow pubescence or down; the fruit bunches short, having few acini or berries on them, but these few are large, and of an oblate figure. Some are as large as a musket-ball, others are of different sizes, and the colours are black, red, purple, green and white, when ripe. All possess a strong rancid smell and taste, have a coriaceous skin, and a tough jelly-like pulp or tegument which encloses the seeds. Between this nucleus and the skin is a sweet lively juice, but a little acerb or stinging to the mouth if pressed hard in eating them. There

is another property of this grape which alone is sufficient to prove it to be the *Vit. vulpina*, that is, the strong rancid smell of its ripe fruit, very like the effluvia arising from the body of the fox, which gave rise to the specific name of this vine, and not, as many have imagined, from its being the favourite food of the animal; for the fox (at least the American species) seldom eats grapes or other fruit if he can get animal food.

The vines, though they make vigorous and extensive shoots, never mount high, but ramble over shrubs and low trees to a great distance from the original root. This appears to be the *V. taurina* of Walter, and the *V. labrusca* of Linnæus.

3d. Bull-grape, *Vitis taurina* of Bartram, *Vit. vulpina* of Linnæus and Walter. This excellent grape is called by the inhabitants of Georgia, Carolina and Florida, *Bull-grape*.* The preceding species is called *fox-grape* from Pennsylvania to Florida. The bull-grape has a stiff, ligneous, smooth stem, of a pale ash-colour, and mounts to a great height by climbing up trees. The leaves are cordated and serrated, thin, and both surfaces naked or smooth. The racemes or fruit bunches short, containing fifteen or twenty grapes at a medium. The berries or acini are large, near the size of a rifle-ball; of a black colour when ripe; having a bluish nebula over them, which being rubbed off, they appear of a deep blood-colour. In figure they approach to an ellipsis or prolate spheroid: however, at a little distance they appear black and round. This species is deservedly esteemed the best native grape in America, and would make a rich and delicious wine. The juice is sweet, rich and lively, and there is but little of the tough jelly-like substance enclosing the seed. The skin of the grape is rather thick, yet there is a sweet melting pulp within, which mixes with the saccharine juice when eaten. This undoubtedly is the first American grape which merits attention and cultivation for wine. It thrives in every soil and situation from the sea-

* Mr. Bartram stated that the word *bull* was an abbreviation of bullet; the grapes being so called from their approaching nearly the size of a bullet. The name, "*taurina*" is, therefore, not the most proper.

coast to the mountains; it even thrives and is fruitful when growing in the barren sand-hills of Carolina and Florida.

4th. Winter-Grape, *Vitis serotina.* Cotyledon palmated. This is a vine remarkable for its sweet flowers. It mounts to the top of high trees; the stems and twigs more hard and ligneous than the bunch grape, to which I think it approaches the nearest. The leaves are small, cordated, smooth, thin and serrated. The fruit bunches branched, but the berries small and black, not so large as currants; the fruit not ripe till late in the autumn, and the juice extremely sour and ill-tasted, so that even birds will not eat them till meliorated by the winter frosts.

I shall now mention the varieties that appear to me to have arisen from a commixture of the several species or races.

Alexander's or *Tasker's grape*, is a large grape, black or blue, the size of the fruit of the *Vit. vinifera* of the old continent. The grapes approach to the elliptical figure. They are, when fully ripe, perfectly black, and as sweet as any grape. (? auth,) Many persons think them too luscious. Before they are quite ripe, some think they possess a little of the stingy flavour of the fox-grape, but my taste never could discover it. It has been supposed to be a hybrid between *Vit. sylvestris* (common bunch grape) and *Vit. vinifera*, because it was found on the rocky hills near the river Schuylkill, above the upper ferry, in the neighbourhood of an old vineyard of European grapes: but I believe it to be an American.

Bland's grape. This is an excellent grape. The bunches large, branched, and well shaped, six or eight inches in length. The berries large, about the size of the common white grape of Europe, and round or oblate; when perfectly ripe, of a dark purple or red wine colour; the juice sweet and lively, having a little musky flavour, with a small portion of an agreeable astringency, somewhat like our best bunch or wild grapes, though much sweeter than any of them. If this grape is what I take it to be, a genuine American, it is a hybrid or variety. It was found in Virginia, where it is called the Virginia muscadel, and sent to me by the late Col. Bland. This excel-

lent grape bids the fairest, next to the bull-grape, to afford a good wine.

There seems to be no end to the varieties of *Vit. sylvestris*, or *bunch grape*, in size and taste of the fruit, as also in the leaves. There is a middle-sized round grape, called *Raccoon-grape*, which appears to be much of the nature of the fox-grape. It is black when ripe: has much of the stingy taste and rancid smell of the fox-grape, and the tough jelly pulp that envelopes the seed; the skin thick; but it is not more than half the size of the fox-grape.

Thus it appears to me that we have in the United States four species of *Vitis* or grape vines, viz.

1. *Vitis sylvestris*, or *Vit. Americana*, or *occidentalis*, common bunch grape.
2. *V. vulpina*, fox-grape.
3. *V. taurina*, bullet-grape.
4. *V. serotina*, winter-grape, by some called Bermudian grape, and innumerable varieties and hybrids.

By varieties I mean different sorts of an individual species, and by hybrids, spurious offspring by intermixture of species. Of the latter sort are,

1. Alexander's or Tasker's grape.*
2. Bland's-grape.
3. Raccoon-grape.*

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*I differ in regard to these being hybrids, they are varieties and nothing more.—AUTH.

PRELIMINARY REMARKS ON CULTURE.

THE French boast that their country possesses greater advantages than any other for the successful culture of the vine, and that for centuries her vineyards have been regarded as one of the principal sources of her territorial riches, and that the exportation of their produce has been the certain means of making the balance of trade with foreign nations at all times in her favour. If we banish from our recollection the once luxuriant fields of now enervated Italy, and pass from the recollection of the genial climes and bright sun of Spain and Portugal, we shall doubtless be compelled to acquiesce with the sons of France, so far as relates to the eastern hemisphere, but when we recur to our own happy country, combining every variety of clime and soil, with the conscious knowledge that she is yet but in her infancy, and look forward with the gaze of anxious hope to her high destiny, can we as Americans fail to reply to that nation in her own language:

Voila l'Amerique ta rival!

Too long indeed have the natural riches of our soil remained subject to the bias of contracted vision, and dormant beneath the eye of prejudice. Too long indeed have Americans listened to the counsel of strangers to their country and to its interests, rather than seek for facts in the bosom of her grateful soil, thereby allowing their own reason and intelligence to be the dupe of foreign ignorance, envy and rivalry. "France," says a French writer, (who seems more conversant with flowers of rhetoric than with those of horticulture,) "possesses in her vineyards mines of wealth, whose advantages are furnished by natural causes which secure to her a superiority in this respect which no other nation can dispute." Happily for ourselves we live in an age and country in which the people are but little prone to credit such exclusive possession of nature's gifts, and it will create exceeding disappointment in all unprejudiced minds, if the lapse of a few short years shall not place this affected superiority of France among the fictions and delusions

of former ages. Bountiful nature, replete with benevolence, has bestowed on us every favour within her gift, and asks only of man to aid the developement of her intrinsic riches by the hand of culture. As to the assertions advanced by some foreign writers, that the same grape varies so much by removal as to entirely lose its character, and that the same kind of wine can in no case be made from it in different localities, they certainly cannot be supported by facts, and have principally obtained currency and credence by repetition; for as positive proof to the contrary, we may quote the Pineau class, which has every where been recognised from the remotest periods, and cannot be mistaken for any other; and the Meunier, which is only a subvariety of the same family, can never fail to be distinguished. We may also enumerate the Muscat family, which can in no case lose their identity or the peculiarities of their class. That the quality of the fruit may be varied by soil, climate, &c. to a certain degree, is acknowledged and has been already avowed; the grapes may also be less mature and spirituous in an unfavourable situation, or they may not mature at all in a too rigorous or northern locality, but it not does thence arise that the grape loses its character any more than might be said of an orange tree, which when transplanted too far north should perish totally. For much as its product may be varied and modified by the operation of diverse causes on the maturity of the fruit, and by changes in the process of making wines; still the primitive character is maintained, and the same grape may be recognized; and however remote the countries may be in which it is planted, a doubt can scarcely exist but that a similar climate attended by the same mode of culture, and a like process in making the wine, will be attended with similar results. Numerous titles have been applied to the same vine in different districts, which have been by some supposed to have been influenced by attendant changes of character, but which are in fact the result of the simplest causes, and arise in the same manner that some of our best known apples or peaches, in transmission through our country, receive numerous appella-

tions derived from the names of their owners or the fancy of their cultivators.

The vines of Madeira may be enumerated as succeeding among us to an eminent degree, exhibiting the greatest vigour in their growth, and yielding in favourable locations fruit and wine which combine virtues equal to those whence they were derived.

In making our selections, the principal point to be observed in addition to the natural properties of the fruit, is the necessary applicability of the variety to the severity or mildness of the climate, a subject which has been already fully discussed in the chapter commencing at page 59.

It is however within the bounds of reasonable supposition, that species peculiar to any country with their attendant varieties, may in some cases possess a natural aptness or applicability to their respective regions. But even this peculiar adaptation subsides after removal by long culture; for it must be borne in mind, that the species of the vine now the most cultivated, was a stranger to all those countries where it now receives its fullest developement; alike to the vineyards of France, Tokay, Spain, Oporto, the Cape, and the Madeira isles. And even in several of the West India islands, beneath a tropical sun, a number of varieties are successfully cultivated, a fact of which European writers seem to be absolutely ignorant.

The extent of our territory over which the vine culture may be advantageously diffused, will afford a subject for much speculation. A doctrine advanced by European writers, is, that the region of the maize culture is also that of the vine. This region in France extends from the Mediterranean coast nearly to the Loire, including Poitou, and the country south of a line from thence to Nancy. The wine country of France extends from the Mediterranean to the north of that line, since profitable vineyards are found in Champagne, Maine, Orleans, and the central part of Lorraine, where the maize is never cultivated as a crop. By parity of reason, the vine may be cultivated with equal profit, from the gulf of Mexico to those

parts of the union which lie rather further to the north than where the maize or Indian corn is to be considered a sure crop.

So conscious of this character of adaptation to climate, are even the vignerons of other countries, that demands have already been made for our *native* varieties, to be transferred to other climes, and the author has already at the request of his correspondents, transmitted a number of American varieties to Marseilles, Germany, and other parts of Europe, and even to Madeira; and it has been asserted, than an American vine introduced into France some years since, and known by the title of Bedford grape, is now held there in much estimation. This vine was carried from the town in Pennsylvania, whose name it bears, and is most probably the Alexander, and therefore not equal to many others of our natives.

The following remarks are from the pen of Professor Nuttall of Harvard University.

"It is probable that hybrids betwixt the European Vine, (*Vitis vinifera*) and those of the United States, would better answer the variable climates of North America, than the unacclimated vine of Europe. When a portion of the same industry shall have been bestowed upon the cultivation of the native vines of America, which has for so many ages and by so many nations, been devoted to the amelioration of *Vitis vinifera*, we cannot imagine that the citizens of the United States will be longer indebted to Europe for the luxury of wine. It is not however in the wilds of uncultivated nature that we are to obtain vines worthy of cultivation, were this the case, Europe would to the present have known no other Malus than the worthless austere crab, in place of the finest apple; no other Pyrus than the acerb and inedible Pyraster or stone Pear, from which cultivation has obtained all the other varieties. It is from seed that new and valuable varieties are invariably to be obtained. There is however at the present time, a variety of one of the native species cultivated under the name of "Bland's grape," a hybrid no way in my opinion inferior to some of the best European grapes."

The Peach and the Vine being natural productions of the same region of the east, the opinion has been uniformly adopted, that a climate favourable to the one could not fail to be suitable to the other. And where, let me ask, does the former thrive to a greater degree than in many sections of our country? From the shores of Long Island, and even much farther north, to the most southern limits of the union, the peach flourishes and produces fruit of the highest quality. In the south of France and Italy, the culture of the more choice and delicious varieties had given to those climes a fame to cope with which required the possession by other countries of such as combined equal natural merits. The choicest they could boast have been latterly introduced among us, and we have also originated many most luscious seminal varieties; and those who possess them know from their own experience, and from the opinions of others who are familiar with the produce of the countries referred to, that in this fruit we have no longer a rival in Europe. Hence we may deduce the most sure prospects of an equal success for the Vine, whose culture when compared with that of the Peach, is yet in its infancy.

The power, wealth, and happiness of France, are principally attributable to the foresight she has evinced in the introduction to her soil of the most valuable natural productions of other countries. It has been remarked that perhaps no enterprise in rural economy devised by the genius of a single man, has carried with it more important results than the first plantation of the Mulberry in the garden of the Tuilleries, formed at the commencement of the seventeenth century, by the command of Henry IV. At this moment, though but little more than a century has elapsed, during only the latter part of which suitable attention has been paid to the culture of silk, the value of the raw material amounts to $4,700,000, and that of its fabrication to above $16,000,000, making a total of about $21,000,000. The Olive, the Almond, and the Fig, were in like manner adopted in the agriculture of France, together with numerous other fruits of minor importance. The vines indigenous to her soil were absolutely

worthless, and those originally brought from other countries were not superior in quality to many of the native kinds found in our forests; and the number of esteemed French varieties, even as late as the year 1720, was far less than we are already able to enumerate as the natural products of our woods and prairies, the spontaneous gifts of nature, unaided by the hand of man. Yet, at the present period, that adopted country of the vine has nearly 4,000,000 of acres devoted to its culture, which yield an annual product of one thousand millions of gallons, of the average value of more than $150,000,000.

And what country ever presented a more eligible theatre for agricultural pursuits than the United States? The land proprietors are not oppressed by feudal tenures, exorbitant taxes, vexatious tithes, or exhausting poor rates. The land is both fertile and cheap, and the great diversity of soil and climate seem to invite the introduction of the varied products of other climes. The country penetrated in every direction, even to its remotest bounds, by navigable rivers, and intersected by canals and artificial roads, offers every advantage for speedy transmission of its productions.

What a revolution has not the introduction of cotton already effected! What results does not the silk culture already promise us as our reward at no distant day!

The Sugar Cane, for which France and the residue of Europe are dependent on the Indies, already forms a most important item among our productions, and promises ere long to be ranked among our exports.

The product of the vine in like manner will be ours, with all its attendant advantages and blessings. The olive culture is already extending in the south; and the almond, the fig, the date, the orange, lemon, lime, citron, filbert, maron, pomegranate, guava, stone pine, and almost every other production which has been heretofore enumerated among our importations, are destined hereafter to become the abundant products of our own fields, and articles of supply to other nations. Such are the happy coincidences of country, of cli-

mate, and of government, that all which is required of us is but to exercise our judgment and our skill in perfecting the advantages which nature has so liberally tendered; by the exercise of which, the balance of trade, of wealth, and of power, cannot fail to be for ever secured to us.

The present extent of American vineyards, and the rapid advances now making in their formation, do not properly constitute part of the present volume; but on that subject the most ample and detailed information will be given in the ensuing one. I will here therefore only give some cursory remarks on that head from the pen of an intelligent writer of Pennsylvania.

"The vine culture seems to have become a favourite pursuit with the agriculturists of the present day, and forms an object of great promise in York county, Pa. Experiments have already shewn that the vine will not only flourish in the poorer soils of that county, but that excellent wine can be made there, and that vineyards will become as profitable as any other agricultural pursuit. A portion of the lands in York county is poor and thin, commonly called barrens, and it has been proved that the vine succeeds well on it, and twenty acres of it, which can now be bought at from $6 to $10 per acre, when planted with vines, and at maturity, will be more productive to the owner than two hundred acres of the best land in the county, devoted to other culture. There are perhaps not less than thirty or forty vineyards within twenty miles of the borough of York, and nearly all commenced within three years. Should this disposition increase, and as a consequence the wine-press be made to take the place of the distillery, it will benefit the morals of the community. Among what are called *civilized* nations, the vice of drunkenness has always been found to prevail most extensively where the vine is not cultivated; while on the other hand, where that culture is widely extended, the temperance of the people is proverbial."

Similar sentiments and like prospects of success seem to pervade all parts of our country where the culture of the vine has received merited attention; and the daily increasing devotion to the subject in the formation of additional vineyards,

will ere long cause each section of our republic to respond to the efforts of the others.

The information which I have elicited on this head from every part of the union, and which will form part of the matter of the ensuing volume, evinces when concentrated, advances so much greater than could well have been anticipated at this early stage of our progress, that I doubt not it will strike with amazement even the most sanguine friends of the vine. Suffice it here to say, that a degree of perseverance and enthusiasm seems to pervade all the votaries of this delightful pursuit, and a warm and friendly interchange of views and sentiments exists among them, which has been comparatively unknown in other species of culture; and although the operators, from being disseminated over so great an extent of territory, are consequently more widely separated from each other, still the existence of a connecting link, by friendly co-operation in one common cause, may justly and appropriately assimilate their united exertions to that joyous period in the history of France, when during the reign of Probus, thousands of all ages and sexes united in one spontaneous and enthusiastic effort for the restoration of their vineyards. Nor indeed when the far greater limits of our territory are considered, can the combined efforts of our fellow-countrymen fail to produce effects even more important, from the greater extent of their influence.

The opinions of some political writers, that we should continue to import adulterated wines and spirits of all kinds, in order to afford the government the means of thence deriving a revenue of *a per centage on their value*, even at the sacrifice of the morals of the nation, and the diminution of its wealth, by a course seemingly less objectionable, because less direct; but which is not less fatal in exhausting our resources; seem fast merging to that oblivion, where the desire and the pride of a truly national independence should consign them; and we may hope that the day is not far distant, when America will fully establish and claim a rivalry with the most favoured lands of the vine and the olive, and proudly disclaim being tributary to any foreign clime.

CULTURE.

The consideration of culture naturally divides itself into three parts.

First, The great or vineyard culture, comprising that of fields and plantations on an extended scale, for the manufacture of wines, brandies, and raisins.

Second, The small or garden culture, on a more limited scale, for the supply of the markets with fresh fruits, or for family supplies alone.

Third, Hothouse culture, where artificial heat is resorted to, either to obviate the effects of climate, or to advance the maturity.

In viewing the subject, I shall commence by considering it in its more extended and most important character, which will necessarily comprise many remarks of general applicability, and equally referrible to the more limited species of cultivation.

Great or Vineyard Culture.

It is a subject of much difficulty to prescribe the proper course of culture required by the vine in every country. So many circumstances are connected with its growth, the excellence of its fruits, and the abundance of its crops, that a different treatise would almost seem necessary for every country, climate, and exposition.

To what country is our attention most particularly drawn for lessons on this interesting subject? To France! to "La belle France!" which has emphatically stripped from ancient Greece her prerogative, and become "the favoured land of the vine and the olive." Spreading as she does over the same degrees of latitude as are embraced by our own country, with the advantage on our part of a still wider domain, it is to her we may look with reason for instruction suited to our proper circumstances, and we may be willing with pride to learn from a nation celebrated for her liberality in the diffusion of all knowledge connected with the sciences and the arts.

The manner of cultivating the vine presents in general great differences; but in every district, whatever may be the exposition and situation of the soil, the cultivators follow established practices. All the methods adopted, notwithstanding their variations, may be nevertheless essentially good, but it is impossible at the same time that they should suit every country, I will not therefore undertake here to describe the whole. From the high state of perfection to which the vineyards are carried in Provence, Duhamel has adopted the course of management there practised as one proper to impart general instruction, and from the last edition of his work published in 1825, I shall extract what is deemed most important to my purpose.

The culture having a powerful influence upon the epoch of maturity, and upon the quality and size of the fruit, it is to the choice of a judicious system in its operations, that we should bestow our particular attention. The principal object of a vigneron, is that the grapes may acquire the saccharine matter, which is the true principle required in the fermentation, and this is only to be obtained by using all possible means to complete the maturity of the grape. The heat which accumulates in the earth during the summer, begins to exhale from it as soon as the nights become cool, which is very frequently before the grape is completely mature. It is therefore adviseable to keep the vines trained low, so that the grapes may be much nearer the earth in a cold climate, and may receive the benefit of that heat. This influence of heat from the earth varies much in several respects. It is greater in black soils because they absorb more of the solar rays, and also in vineyards where the plants are distant from each other, because the rays can then penetrate to a greater degree; and upon declivities and sloping lands, because they receive more of the sun's heat, and on dry soils, because the heat is not carried away by the influence of water. This heat continues longer on the hills and against walls and places sheltered from winds, than on the summit of mountains and in plains. The great quantity of leaves, stalks, and poles, form a covert, which

prevents the rapid evaporation of that terrestrial warmth, and it is from this effect that they account for a result contrary to one of the precedents already stated, which has been observed in certain vineyards around Paris where the vines touch, but nevertheless often attain to an earlier maturity, than neighbouring vineyards where the vines are more remote.

An entire misconception appears to exist among some cultivators of the vine in the colder latitudes of our country. Acquainted as they are with the difficulty of maturing many varieties of grapes in their respective locations, they apply manure profusely for the purpose of insuring success, which by causing the plant to advance greatly in the growth of its wood and foliage, and to continue this state of verdure to a much later period, has absolutely an effect directly the reverse of what was desired and anticipated, by retarding the growth and maturity of the grapes, and often serves to prevent their ripening at all, when otherwise they would not have failed to have been perfectly matured.

So many facts conduce to prove the influence of culture upon the quality of the fruit, and consequently on that of the wine, that no one can be ignorant of it; the bunches which ripen in Sicily, and in the isles of the Archipelago, on the tops of the tallest trees, in Italy on trees cropped down to ten or twelve feet in height, in the plains of Languedoc to stocks but two or three feet in height, could not ripen in the north unless trained within a few inches of the ground or against walls. This indicates what is really the fact, that it is indispensable that a different course of culture be pursued, applicable in each case to the respective climate where the vine is planted. Vineyards planted upon very steep hills require a different mode of treatment from those which are on plains, and those in moist soils from others in dry situations. Different varieties of vines also need some variation in their management, and inattention to these points is the reason why many have failed of success, who have endeavoured to improve the quality of their wines by the introduction of plants from the most celebrated vineyards, without adopting the methods of cul-

ture pursued by those who were successful in their management. The details which will be given hereafter, when speaking of the different French vineyards will fully establish these facts.

The Romans reared their vines by fastening them to certain trees, as the poplar and the elm, &c., whence these trees were said to be wedded to the vines, which gave rise to Ovid's elegant and entertaining story of Vertumnus and Pomona. The vines, as has been already stated, mounted to the very highest branches of the loftiest trees, and even o'ertopped them; and Pliny states that on this account the grape gatherers, in time of vintage, put a clause into their covenants when they were hired, that in case their feet should slip and their necks be broken, their employers should give orders for their funeral fire and tomb at their own expense. This mode of culture is still continued in that country, as well as in many parts of Sicily, where Swinburne tells us, in the walks under the rocky cliffs of Posilipo, the peasant is seen swinging from the top of a tree on a rope of twisted willows, engaged in trimming the poplar and the luxuriant tendrils of the vine, while the whole vale rings with his rustic ditty, which so naturally brings to mind the verse in Virgil—

"Hinc alta sub rupe canet frondator ad auras."
The lopper shall sing to the winds under the lofty rock.

Preparing the Ground.

Although various modes are pursued in the preparation of soil by trenching or ploughing it to a greater or less depth, and in extending this preparation to the whole field or only to broader or narrower strips where the rows of vines are to be planted, still there cannot exist a doubt that the more perfectly this first operation is accomplished, and the more light and mellow the earth thereby becomes, the more rapid will be the advance of the vines from the advantages thus afforded for the extension of the roots. The French writers universally allow, that in preparing for a vineyard, it is preferable that the whole ground should be trenched to the depth of one foot

and a half, and that at all events this should extend a foot or more in breadth, where the rows of vines are to be planted, which operation is usually performed the year previous to planting. The French vineyards being mostly on stony ground, it is often necessary to dig out many of the stones in order to facilitate the extension of the roots, and to render the after working of the ground less laborious. In such cases these stones are gathered in heaps, or placed as at Côte-Rotie in lines, in such manner as to prevent the soil being washed away, thus affording economical terraces much more solid than those formed by hedges of shrubs, as is generally the method pursued. Loudon seems averse to cultivating the earth to a great depth, and makes the remark, that "in nine cases out of ten, the unfruitfulness of the wall trees in England is owing to the too great depth and richness of the borders, and the continual cropping and digging of their surfaces;" but other writers in speaking of the vine, state that the ground should be dug to the depth of two and a half or three feet. The safest measure to pursue, is to read all that others have to say, and then to exercise one's own judgment.

The course which I should most approve and recommend, both from considerations of economy in labour and beneficial results, is to plough to as great depth as can be done, with four oxen or horses and a plough of proportionate strength, or by having two ploughs to follow each other; this operation should be performed early in the season, after having covered the surface with a good coat of compost or rich loam, or if stable manure can alone be had, it should be that which is old and decomposed, and where all scent has evaporated; after two or three weeks have elapsed, harrow it and clean it from noxious weeds. This ploughing and after harrowing can be repeated twice or thrice during the season at suitable periods from May to November, and the oftener it is performed the better, as it serves not only to render the soil completely pervious to the roots, but also ameliorates it by subjecting every part of it to the operation of the atmosphere, and by allowing the evaporation of superabundant humidity. At the last

ploughing in October or November, it is particularly recommended to furrow to as great a depth as possible, by the use of two strong ploughs to follow each other. The coverings of compost, or decomposed stable manure, can be repeated at more or less of the several ploughings, and in all cases with great advantage. During these preparations of the soil, all large stones should be removed, as they would obstruct future operations, but the smaller ones will be rather beneficial than otherwise.

The final harrowing in November will leave the ground in a suitable state to receive the vines, the various ploughings having mellowed the earth to the depth of nearly or quite two feet. Another method of preparing the ground, and generally deemed still more advantageous, is by double trenching, which is performed in the following manner, in case the operation is extended to the whole surface. Mark out a given plot, either an oblong or a perfect square, then strike a line at one end, and mark off a strip of two feet in width, from this dig out the earth to the depth of two spits, which remove by a cart or wagon to the opposite extremity, this of course will leave an excavation for the whole breadth of the plot of two feet in width, and about the same depth; next strike the line and mark off another strip of two feet adjoining the first; from this remove one spit or foot of earth and throw into the first excavation or trench, on this throw a thick coat of compost, rich loam, or manure of the description before mentioned, and above this throw a second spit of earth from the second trench; the result of this operation is that about a foot of the surface mould is placed below, and a foot of the lower mould is brought to the surface, with a layer of manure between the two. This process is to be continued till the plot is completed, and it will be at once perceived that the requisite quantity of manure should be placed on the ground previous to commencing the other operations, this should be laid in heaps of about a cart load each. The principal objection to this mode of preparation is the enhanced expense attending it when compared with the former mode;

but when men are employed who understand it, the requisite disbursement is not so great as would be supposed, and no men are in general more competent to its performance than the Irish emigrants.

I have found the expense of this mode of preparation to average about $12,75, for every ten thousand square feet of surface. It is probably as much on account of the expense as from a consideration of the labour in removing the stones, that in many vineyards established on stony soils, they trench only a narrow strip of ground where the row of vines is to be planted, and this course may be in like manner pursued by those among us who are averse to incurring greater expense, and in doing it the following mode may be pursued. Having marked out by lines the strip to be trenched, dig out the earth to the depth of one foot, and throw on one side of it, and remove the earth to the depth of another foot, and throw on the other side; then recommence by throwing the former at the bottom of the trench, and after covering it with a thick coat of compost or manure, place the remainder of the earth on the top of it. It will readily be understood, that as the advantage of preparing the whole plot in this manner is proportionably greater than that of a part only, in like proportion to the breadth of the strips of ground thus trenched, will be the advantages derived from it, by affording the means of a more wide and easy extension of the roots.

Those consequently who are willing to incur the disbursement requisite for an entire preparation of the ground, will reap advantages far exceeding the difference in expense, and I would recommend that in planting a vineyard which without doubt may stand for ages, no parsimony or false economy be introduced; but that every disbursement be considered according to its relative importance as connected with the great object in view.

Where the planting of the vines is deferred till spring, the ground should be again ploughed to as great a depth as possible as soon as it is sufficiently dry, and be followed by the harrowing as before. The more compact the soil, the deeper it should be worked in preparing it. If it is low and

wet, particular pains should be taken for draining off any stagnant waters.

Planting Vines.

In all climates where the excessive cold is not an insurmountable objection, the fall planting is to be preferred. And the advantage is the same with the vine as with fruit trees. It allows a sufficient period for the ground to become settled and compact about the roots, and the latter become prepared during the same space of time, to throw out the small fibrous roots whose vegetation commences at the first return of spring, uninterrupted by any retardment which a spring removal is calculated to produce. Their growth in such case seems unaffected by the transition, and the settled state of the earth which allows the young roots to extend themselves promptly, forms a powerful protection against the effects of drought, whereas when they are removed in the spring, the looseness of the earth for a considerable period, retards the advance of vegetation, and renders them liable to much injury, thereby causing many vines to entirely fail unless they are nourished by frequent waterings.

In the colder latitudes however, spring planting will be absolutely necessary on account of the climate, for it is well known that vines planted in the spring become by the summer's growth, established in the soil, and acquire sufficient strength and vigour to resist severities of climate, which would in many cases prove fatal to them if planted in the autumn, whereas in the latter case sufficient time would not be allowed for the roots to take hold of the soil, and to establish themselves in their new position. In removing the vines it is necessary to keep the roots moist from the time they are taken up until replanted, and they should be also well watered immediately after planting.

An intelligent Swiss correspondent advises me, when planting to dip the buts of scions and the roots of vines in a mixture of cow droppings and water. The holes for the vines should be two feet deep, and the same square or in proportion to the size of the vines, being made in all cases sufficiently capacious to allow the roots to take their proper position.

The autumnal planting should take place at the fall of the leaf, say in the eastern states after the 20th October; in the middle states, and as far south as Georgia, it should be performed in November, and in Alabama, Louisiana, and Florida, in December. I am convinced that where the winters are severe, early fall planting is much more advantageous than when it is deferred, as the vines will form young roots the same season, which will greatly aid them in supporting the approaching rigours of the climate. But where the great severity of the winter renders spring planting necessary, it should be performed at the earliest possible period after the frost has left the earth, which in this latitude is generally from the 5th to the 15th of March.

A new vine should not be placed in the precise spot whence an old one has been removed, but the earth must be allowed time to resume its natural vigour.

The earth that is used to fill in the holes or trenches, should be pulverized; and in doing this, and in every other operation, it is very desirable that the earth which has been meliorated by the influence of the atmosphere, be placed at the bottom, so as to be nearer to the roots.

As a measure of economy, the trenches for planting may be opened with a heavy plough, which can be run several times in the same furrow, until it is of the requisite depth, and any additional clearing out of the earth deemed necessary can be done with the spade.

In planting vines, the French writers recommend giving them an oblique, or rather a curved position, by laying the root across the bottom of the hole, and leaning the upper part of it to one side, and assign the same reason as given for planting cuttings obliquely.

In all plantations of vines care should be taken that they be as far as possible of uniform size and strength, as young ones do not prosper to an equal degree when mingled with older and stronger ones.

If the ground has been well worked and prepared beforehand the holes for planting the vines need not be more than a foot

or eighteen inches square, with a depth of one and a half or two feet according as the size of the plants may require, but if the previous preparation has not been thoroughly performed they should be two feet every way. In planting cuttings in prepared ground, no larger holes are required than can be made with a pin of iron or hard wood, called a dibble, such as is generally used in planting cabbages, &c.

In planting vines, leave the buds always open to the air and free from covering; some persons cover the whole vine when they plant, which is an erroneous procedure, as a rooted vine will support itself, but the ground when raised often becomes heated by warm rains, and rots or moulds the vine, in consequence of which many perish.

Distances to be observed in Planting.

The distance at which it is desirable to plant vines cannot be subjected to any fixed rule, but should be regulated by circumstances, and must depend upon the kind of culture desired to be adopted, upon the wish to have more wine or that of finer quality, and also on the nature of the soil. Those who wish to form *hautins* or high trained vines, and those who form trellices which admit of their extension, should plant the vines more remote than they who train their vines low. It is also to be considered, that the less the vines are confined as to space, the better are they nourished, and the more are they exposed to the beneficial influence of solar heat; but in poor soils, if placed more distant, they will attain to a greater age than in rich soils. In the department of Ain, the vines are planted in quincunx, and at a foot and a half distant, an arpent thus containing 5000.

Vines planted in double rows, with a space of two feet between them, and a space of three feet intervening between every two rows, are by many deemed the most advantageous in regard to duration, abundant produce, and quality; because they have the more space to extend their roots; and their foliage and fruit partake more fully of the beneficial effects of air and sun. The intermediate space need not be lost, for some branches can

be trained to occupy it, or it can be sown with lentiles, beans, barley, turnips, &c. When it is desired in a warm climate to have abundance of wine without exhausting the soil, the vines must be placed at a greater distance, six, eight, and even ten feet apart, and they can be ranged in parallel rows, with the branches trained horizontally in the line of the rows, by means of poles fixed in the ranges of the vines. It is also an excellent method, where it is desirable to raise grain, and other articles on the same ground to plant the vines in ranges, at the distance of twenty or thirty feet, for not only do they produce excellent wine, and abundant crops, but in hot climates the vines trained in palisades shelter and increase the productions of the intervening spaces. It is now well understood, that the more space the vine is allowed whence to derive its nourishment, with the more air and more sun; the greater will be the adtantages derived from it, in addition to which it requires less labour. The warmer the climate, the greater the distance at which vines should be placed from each other. In the neighbourhood of Paris, which is one of the most northern localities of vineyards, they plant them but two feet apart, which is the least possible distance that should ever be allowed.

In the detail of the different modes of culture pursued in the respective vineyards of France, I shall state the distance generally adopted in each.

In Italy, the vines are left to mount the trees, but although this culture may suit a climate so hot, that the shade of the branches will not prevent the ripening of the grapes, still it is unsuitable to more northern locations, where vines so trained could not mature their fruit, and consequently would not produce good wine; indeed it is asserted that in every climate where they are thus trained, the wine is inferior.

The most simple manner of establishing a vineyard to be cultivated in *hautins*, or high trained vines, is to plant trees headed down to eight or ten feet, of about two inches in diameter, and at two *toises* distance from each other, and when they become established, to plant beside each tree from one to four vines which are first trained on the branches, and are then led

in festoons from one tree to another. The intermediate soil is usually cultivated in grain or vegetables. This species of culture when it is properly attended to, produces an effect very pleasing to the eye. In some parts of Italy, this mode of cultivation is pursued by planting dead trees to support the vine, which last twelve or fifteen years. In Trevisan, they make large trenches at twenty feet apart, and ten feet from each tree, which are planted in quincunx. They put therein four vines two feet and a half from each other, which are afterwards trained along until they approach the trees that are to support them; this practice is much recommended.

One of the most advantageous and agreeable modes of cultivating the vine, is to plant it in quincunx or in a line, with trees alternately, which must be kept very low, say two or three feet high only, and on which are left a small number of shoots annually; the distance between the trees to be ten feet. The vines must be pruned in such manner that they may have every year six branches, each one of which is to be attached to the tree nearest to it. These branches form festoons, producing quantities of grapes which are near enough to the earth to enjoy the benefit of the heat emanating from it, and are not deprived of that of the sun. Maples have been generally employed for this purpose, but some eminent writers prefer the hawthorn, because its growth is more slow, it also accommodates itself to poorer soils, and its foliage does not cause so much shade. Vines thus trained are to be found in the island of Madeira.

It has been a matter of surprise that this practice, so in accordance with theory, has not been more generally adopted; for if living trees were deemed objectionable, stakes could be used to supply their places. There are indeed some localities where they substitute for trees, poles of the size of a man's arm, six or eight feet in height, and divided or forked towards the top. These are sunk deep in the earth, at the distance of six or eight feet, and at the foot of each is planted a vine whose shoots are conducted from one to the other by degrees in the form of festoons. In some of the most southern departments of France, the vines are planted very distant from

each other, the vine is trained with a single stalk to the height of two feet, and the plough is frequently used to do the labour.

In Burgundy, Champagne, and in the environs of Paris and Orleans, and other places in that section of France, the vines are trained as near the earth as possible, each one to a pole or stake, and the labour is done with a pick-axe. And even in Italy, near Barletta, the vines are trained only two feet in height, in order, as it is said, to mature the grapes the more. In some of the islands of the Archipelago, and in a few instances in France, the vine is left to run upon the ground; and Zalloni states that it does not appear to injure the quality of the wine produced from those he noticed, as would probably be the case in a climate less warm and dry.

Some eminent French writers, taking into particular consideration the great quantity of wood consumed in countries where it is scarce, do not object to the culture of the vine without poles where it is practicable, on account of the economy which can thereby be exercised in saving time and expense; but my own impressions are, that in any case such course would be but a false economy, and would cause in its results far greater loss and injury to the crops than the amount saved by it. So plentiful however is the article of wood throughout our country, that it need not be made an object of great consideration.

In the vineyards in the vicinity of Bordeaux, Rochelle, Lyons, and Angers, the young vines are trained on poles, while the old ones are kept quite low, and the ground is worked with the pick-axe.

The extraordinary difference in vigour and other characteristics between the American and foreign vines, indicates that a corresponding variation in the distance at which they are to be planted, is not only reasonable but necessary. And from the greater developement which our native vines seem to require, I conceive that they may be much more successfully cultivated by being allowed to cover a much larger space than is assigned to foreign vines, and that their crops under such

circumstances will be much more abundant. I therefore think that if the rows are planted six feet asunder in the same manner as the foreign sorts, the vines should be placed twelve feet apart in the rows, so as to give space for training of at least double the portion of wood allowed to the exotic kinds; and it is my opinion, drawn from their apparent natural character, that the produce from each vine placed at such distance, will be far greater than from two vines planted at half the distance.

Distinctions must doubtless also be made between the native varieties, as some among them grow with an exceeding degree of vigour, and seem to render an extensive developement absolutely necessary to their success, while other kinds are less prone to extend themselves than many of the European varieties. These variations in character, and the opinions of the most intelligent vine growers of our coun try on points connected therewith, will be made the subject of after comment.

Rearing Plants for Vineyards.

M. Antoine David, a celebrated French writer, most approved of the custom now prevalent, of forming nurseries of vines, in order to have at all times a supply of rooted plants, which having been reared in the vicinity of the spot where they are destined to be permanently planted, evince by their progress, whether they have met with that appropriateness of soil (terrenum aptissimum) which is requisite for a speedy and perfect developement. These nurseries furnish all the plants required to replace such as have failed or may languish. The plant has in this case the same age, and will allow of forming *provins* if necessary.

He also supports this practice by the observations of Columella, whom Olivier de Serres called his master and oracle. In stiff soils, where scions meet with numerous obstacles to their speedy establishment, rooted plants alone should be employed, as their success is certain, and if planted with proper care, and attention to manuring, a vineyard may soon be formed both durable and of abundant produce.

When rooted plants are not obtainable for the purpose, there are two other methods of obtaining vineyards, viz: from scions and from layers. In Provence, cuttings or scions are seldom used, but preference is given to layers, because they are much less subject to perish, have more strength to resist the extremes of cold and heat and unfavorable weather, and also because they grow much faster, and consequently yield fruit at an earlier period. Nevertheless cuttings may be planted in place of layers in light and sandy soils, but stiff soils absolutely require rooted vines for the purpose. This mode of raising the vine was long known to the ancients, and by far the greatest number of authors who have treated on agriculture, have supported the precepts of Columella. These, as I have already stated, are generally followed in Provence, and Duhamel asserts that they may be adopted universally, without fear of error.

Some authors however prefer scions to large rooted plants, and these again differ on the point of preference between scions composed wholly of new wood, and those which have a joint or more of the two years' old wood. It is also a question whether scions had better be planted at once in the situations they are to occupy, or whether it is best to plant them the first season in a nursery, whence they can be transplanted the next year. In planting the scions, they should be put a foot or more in depth, and French writers recommend that in the operation the lower end should be curved, which, by causing a greater accumulation of sap, as it ascends more slowly when they are thus placed, disposes them to form roots more speedily. When rooted plants are used, this precaution is unnecessary; and these, it has already been mentioned, it is deemed most advantageous to plant in autumn.

In the formation of vineyards, Duhamel deprecates the custom of mingling a great variety of grapes in one plantation, and attributes to this cause the inferiority of the wines in some of the most favoured regions of France; and states that it should not be forgotten that every grape has a distinguishing principle peculiar to itself, and that as some kinds will enter

speedily into a state of fermentation, when others will be slow in that process, these opposite characters may injure both the perfection of the wine and its preservation.

Rearing Vines from Cuttings and Eyes.

Various methods have been adopted and pursued in this species of propagation, for while some persons differ in the length and number of eyes allowed to each cutting, many vary in regard to allowing a greater or less portion of the cutting to remain above the surface of the ground, while others cover them totally with the earth.

A difference also exists in respect to position, and in placing them either perpendicularly, obliquely, or horizontally in the ground. Some writers insist that wood of two years old should alone be used for cuttings, others that there should be a portion of the old wood to form the base of the cutting, while by others this is deemed of no possible importance, and by some who prefer the young wood altogether, is considered rather detrimental. The most common course pursued to form cuttings, is to leave to each three joints or eyes, the wood being cut smooth off close beneath the lower one; these are planted either perpendicularly or obliquely at a sufficient depth to entirely cover two of the eyes, and to consequently leave one above the surface. In some cases the earth is then raised so as to entirely cover the upper part of the scion, but that portion is more generally left entirely free and open to the air The same method is adopted by others with this difference, that but two joints are allowed to each cutting which consequently only admits of one to be beneath the surface.

It might perhaps be advantageous where the upper part of the cutting is left exposed to cover the end with a composition of beeswax and rosin, but I do not recollect to have ever seen this measure adopted. French writers advocate the use of long cuttings containing four or five joints, in order that by placing them for a greater length in the ground, they may thereby form from the several joints distinct sets of roots. But so far as experience has tested the fact among us, the

finest vines have been raised from short cuttings of only one or two eyes, and it seems to be rational that single eyes should make the most perfect plants, as I look upon it as one of the axioms in horticulture, that a young plant is the more perfect in proportion as it is divested of any section of an old one. The only advantage that appertains to long cuttings which I can perceive, is that by extending to a greater distance in the earth, they are more protected against the effects of drought during the first season; and in planting vineyards on declivities they are less likely to be torn away by floods of rain, &c.

Much stress is laid by some on the point of placing the cuttings in a sloping or oblique position in the earth; but having myself practised both this and the perpendicular position in my plantations, I have never discovered any difference as to their success. It is said that in some parts of Germany they practice the following mode:—Having formed cuttings of three eyes each, they dig holes at suitable distances where the vines are to be permanently located, and place two of these cuttings horizontally in each, and cover them with earth to the depth of about one inch and a half. By this mode it is said very few fail, and it being on the same principle as planting eyes, but with thrice the means for success, I doubt not it is an excellent plan to pursue. The practice of raising vines from single eyes or joints is now very prevalent. It is necessary in preparing them to leave half an inch of wood, both above and below the joint; some persons leave an inch each side, and others half an inch above, and two inches below the joint. These are planted from one and a half to two inches below the surface with the bud uppermost, and their positions may be marked by stakes to prevent their being disturbed. Moderate waterings sufficient to keep the cuttings moist, but not wet, are beneficial in case the season should prove dry. I have understood that the following method has been practiced in South Carolina, with success:—A piece of moist ground having been selected, the eyes were prepared by covering the ends with a composition of beeswax and rosin, and they were then placed one inch below the surface, and covered

with half an inch of fresh stable manure, water was next poured on to settle the earth around, and a covering of moss spread over the surface to preserve moisture. The manner of proceeding just detailed seems more particularly applicable to the southern states, and to localities naturally dry and arid, for in general, very moist soils are objectionable for nurseries or plantations of the vine. Dr. Hulings has remarked to me, that some varieties do not succeed from eyes equally well as by other modes, and cites the Honey grape as an instance.

In the states north of the Carolinas, the spring is the most proper season for planting cuttings, on account of the frequent extreme severity of the winters in many parts, which would greatly injure or destroy them. Even a top covering as has been suggested by some persons, would be insufficient in this latitude, although it might suffice south of the Potowmac. In the more southern states it is generally preferred to plant them in November and December, although many defer it till February and March, and even April, and succeed very well in case their buds are not too far advanced. Berneaud states, that a year or even two is deemed to be gained by fall planting, and that it is said if half the slips are planted in the fall, and the residue the following spring, that at the end of five years, the former will have borne fruit three times, while the latter will have borne equally well but once; there can be no doubt that the planting of cuttings in the fall, carries with it the same proportionate advantages, as planting trees at the same season, as it in like manner allows time for the ground to become settled, and prepares the scions to push out their young fibres at the first incitement of vegetation. The difference in effect between planting trees in spring and autumn, is full two-thirds of a season's growth, besides a great saving in the lives, and my opinion is, that advantages fully equal are secured by pursuing the same course in the planting of vines and scions.

The season of pruning the vines is that at which it is most convenient and advantageous to prepare the cuttings, and this is performed either in the autumnal or winter months. But should it be inconvenient to complete their preparation at that

moment, the shoots may be cut into suitable lengths and buried in the earth, or placed in some other situation calculated to preserve them sufficiently moist to await a period of leisure. The wood selected for cuttings should be from vigorous shoots and such only as are perfectly ripened. The rules for the preservation of cuttings from the time they are prepared till the period for planting them, are based on the simplest principles, being merely to preserve the vital principle without an advance of vegetation, or with as partial an advance as possible. Any method therefore which may be adopted to effectually preserve this vitality, will ensure general success. The best course, and one which I have regularly pursued, is to bury the cuttings upright for two thirds their length in boxes of clean sand, or to cover them entirely in barrels filled with the same. They can then be placed in a cellar or any other place free from frost until wanted. It is recommended as much more advantageous to keep them in an ice house, but this cannot be done by every one. The preferable situation for them is where the cuttings will be so cold as not to vegetate, and at the same time, retain sufficient moisture to preserve life. The sand should be moist but not wet enough to rot the scions, and it should be clean to prevent their becoming mouldy. With a proper regard to these precautions, there need be no doubt of a successful result. Another method of preserving cuttings, is to dig a hole in sandy soil of sufficient depth to be out of the reach of frost, where they can be placed with layers of sand between each layer of scions, and the remainder of the hole be filled up with hay, straw, or sand. In this situation they can safely remain until the middle of March or beginning of April. In most cases it is beneficial before planting the cuttings, to soak them for some hours in water by way of refreshing them. It is not necessary to defer planting the cuttings until after all spring frosts are past, because the natural vegetation of vines is very late, and a considerable time will elapse before the cuttings push out shoots. I prefer forming my plantations of them in March, and I have never known any to be injured by frost; for indeed the developement of the foliage of grape vines

generally takes place so late in the season, that it very seldom happens in this vicinity, that there is an after return o frost.

If the general method is to be pursued of rearing the vines in nurseries preparatory to placing them in their destined locations, the cuttings may be planted in rows from two to two and a half feet asunder, and about a foot a part in the rows, where they can be allowed to remain until they have made one or two years' growth according to the option of the proprietor. Some persons prefer raising vines in pots, but this method is too troublesome to be pursued on a large scale, and where so much greater facilities are offered by open culture. Those who adopt it commence their operations early in the spring, and generally use single joints to each end of which they apply composition or plaster; these are then planted at a depth of one and a half inches in rich soil, and well watered to settle the earth: the pots after being thus prepared are placed in a hot bed and regularly watered, where by the middle of May or June, they will attain sufficient growth to allow of their being turned out of the pots and placed in the garden or vineyard intended for their reception. Here the vines should receive occasional waterings until they become established in their new position. If however it is preferred to plant the cuttings at once in a permanent situation, the following course can be pursued: After the distances have been marked out and the holes prepared to receive them, the planting can proceed by adopting such one of the different methods as may be preferred, but in all cases I would recommend that three scions be set in each place thus marked out, in order to allow for any failures, and I consider it preferable that two of these should be suffered to grow, as one can be afterwards removed; and the third (if that should succeed also) can be destroyed or be transplanted the ensuing season. By thus planting an extra number of scions, you secure yourself against the injury resulting from failure, and you increase the chance of a successful growth three to one; and the value of the extra scions is nothing, when compared with the time that

might be lost, and the disappointment that often ensues, from planting single scions.

A difference of opinion exists about the treatment of cuttings the first year, for while some urge with seeming propriety to prune them to one shoot, others contend that by leaving all that may appear, the stock acquires additional strength.

Layering or Provignage.

This is an operation very generally pursued in vineyards, and it is only those who cultivate the vine in *hautins* and on palisades that do not practise it. In Burgundy especially, and in other more northern vineyards, this is the general custom. The branches or shoots intended for layers should not be shortened or pruned the previous season. The manner of performing the provignage, is by opening the ground to the depth of from six inches to a foot, in proportion to the size of the shoot, whichis then laid into it and covered with earth, the extreme end rising from the further side, and supported by a stake or pole. Care should be taken to remove any eyes found upon that part of the shoot leading from the parent stock to the layer. The operation should take place either in the fall or early in the spring, and the layers, unless the branch selected is of extraordinary size, will be well rooted by the ensuing fall, but if of very large size, they will require a year longer. If intended to be removed, the period for transplanting them is the same as recommended for other vines, when they should be cut off close to the parent stock. The principal object of this practice is the increase of the vines; but it offers other important benefits, which I will here enumerate: the branch being bent, the shoot which comes from it yields more and better fruit; forming new roots it draws more sustenance from the earth, and consequently the fruit becomes larger; it renders it easy to keep the grapes at a short distance from the ground in climates where that course is necessary; and lastly, in vineyards where this course is practised, new vines are not required, for there, as is the case in Burgundy, the provins not being separated from the parent

vines, the plants can be preserved for centuries, which is favourable to the quality of the wine, as is proved at the Clos-de-Vougeot, Marcs-d'or, Migraine, and many other vineyards where the superiority of the wine is derived from the age of the vines, which are four or five hundred years old. In this respect the vine culture of Burgundy is to be preferred.

The inconveniences of the provignage in respect to the young plants when separated from the parent vine, as is done in many vineyards, are that it weakens them and prolongs the period during which inferior wine is produced from a deficiency in their age and strength. Some proprietors form provins of a whole vineyard of old vines, in order to renew it, which is considered an excellent course. It is also a good method to replace by this plan any vines that have died, or vacancies which may exist in a vineyard. In France, these provins or layers are only made from old stocks of five to eight years' growth at least, as younger ones are too much injured and exhausted by the operation; and indeed, if destined to be detached from the stocks, they must in all cases be more or less hurtful to the parent vines. It is therefore always deemed better to have recourse to propagation by cuttings. A vineyard from layers comes soonest into bearing, but one grown from cuttings endures the longest, and is the most productive. Those therefore who prefer the wiser course of making a present sacrifice, in order to ensure future advantage, will prefer the latter; whereas, they who seek for immediate gratification will choose the former.

Layers may also be made from shoots of the same year, if laid down in June, and the ensuing fall or spring can be taken off and planted where desired. Another method of raising layers, is to take flower pots or coarse baskets or boxes of about a peck measurement, before vegetation has begun; and train a shoot through the centre of each which must rise above and be pruned to three strong buds, the pots or baskets are then to be filled with light rich soil, and a stake placed by each to support the vine. They should be watered occasionally through the season, and will produce fruit the same year.

In the fall, the old shoot can be cut off just below the basket, which can now be removed without deranging the roots, in order to plant the vine in a vineyard or garden. When baskets are used, they are often planted without removing the vine as they soon decay; but if pots or boxes are used, the best course is, after preparing the holes for their reception, to turn them out with the earth entire, which can readily be done by proper attention, and these vines will then be ready to bear fruit the ensuing year.

Rearing Vines from Seeds.

This method of propagation when judiciously pursued, carries with it many advantages. It serves frequently to acclimate species, the original varieties of which are little calculated to succeed, by the production of such as have characteristics better suited to their new location. It also frequently originates varieties of superior worth and excellence to the parent stock. And by a renewal of the original vigour of the species through a perfectly natural channel, it serves to give to its offspring all the primitive vigour which characterised the plant. It is indeed nature's grand restorative of whatever exhaustion may have taken place from any causes whatever. For although there can be no reasonable doubt but that Providence has afforded the means of perpetuating the gifts of nature without limit of time, still as vines are propagated almost entirely from scions, and but seldom by ingrafting, it is probable that the effects of a long culture in this way may be more sensibly demonstrated, than where the natural growth of the variety is aided by ingrafting it on young and vigorous stocks.

Seeds intended for planting should be carefully preserved either dry or in sand until the first approach of spring, the ground should then be prepared by making it extremely rich, mellow, and light, a heavy soil being entirely inappropriate. In this drills may be made about twenty inches apart, and three-fourths of an inch deep, into which the seeds can be dropped at a distance of about six inches from each other,

they having been previously soaked in water for a few hours. Immediately after planting, the ground should be watered to cause it to settle, and whenever the weather is dry this should be repeated. Some persons in order to obtain a greater growth the first season, sow the seeds in pots during the winter months, and place them in a hot bed, where by regular attendance they attain sufficient size by the middle of May, to be planted out in nursery rows.

When the plants have grown to the height of nine or ten inches, stakes of about three feet in height should be placed between every two vines, and to these they can be trained allowing in no case but one shoot to each plant. These can be subsequently treated in the same manner as plants of the same age raised from cuttings. There will however be some among them which will not bear fruit, and the proportion will be greater or less according to their parentage. As soon therefore as these barren ones can be designated with precision, they can be engrafted with such varieties as may be preferred.

Major Adlum states that probably not more than half the number of seedlings will produce fruit. Dr. Hulings states that in his experiments, principally made with seeds from the most southern and western states, including some from Owachita, he found only about one in seven to bear fruit, on which account he ceased rearing any more. Others have been more successful, and have had a greater proportion of fruitful vines, than is named by either of the preceding gentlemen. For my own part, I consider the proportionate success in this respect depends altogether on the species. Our northern ones are known to be almost wholly polygamous, whereas several of the southern varieties are dioecious; it thence follows that we may have a large proportion of barren seedlings from the latter, when we would scarcely have any unfruitful ones from the former, and as a natural proof of the latter remark, how very few barren vines do we discover in our hedges and woods?

Having now in progress nearly or quite ten thousand seedling plants reared from natural varieties, and from an admixture

under every variety of circumstance, I shall be able to test the above point to ample satisfaction.

It has been remarked by Mr. Poiteau, in the annals of the Paris Horticultural Society, that improved varieties seldom originate in regular nurseries, but are generally produced by chance, and found in woods and hedges, where the finer sorts are little known, and where such as do exist are mismanaged and neglected. Mr. Knight has also advanced facts to prove that a crab fecundated by the pollen of a good fruit, produces better kinds from the seeds than can be obtained from the seeds of good fruit. We have also the authority of Professor Van Mons, that the Flemish horticulturists in their attempts to obtain new sorts, do not prefer the seeds of meliorated fruit. The law of nature that "like begets or produces like," it is contended by the writer first quoted, is not always uniform among domesticated animals or highly cultivated plants.

These remarks are no doubt for the most part just and appropriate, and apply equally to the grape as to other fruits, nevertheless as we have every day the most decided proofs that the law of nature referred to, is *very general* in its influence, I would advise in all cases where a union of varieties is desired, that one of them should be of the most choice description, in preference to blending two natural or inferior varieties; and seeds produced by such combination, I should certainly deem better calculated to yield fine fruit, than that obtained from natural or inferior varieties alone. As to the necessity of pursuing this course of seminal reproduction for four to six generations, as advanced by some European writers, it is certainly not susceptible of argumentative support where the first union is a judicious one, and is rather calculated to weary the patience of the experimentalist than to result in any decided benefits.

In all attempts at artificial fecundation, I would recommend that one of the varieties selected be of native origin, as there exists no want of hybrids between European varieties alone; a large proportion of those now in cultivation having been doubtless produced by natural admixture of the pollen, in the

vineyards where they originated. For the purpose of hybridizing, the varieties of *Vitis æstivalis* should be selected in preference to those of *Vitis labrusca*, on account of the much higher vinous properties of the former; and there cannot exist a doubt but that we may readily produce well acclimated hybrids between the native and foreign varieties, without the trouble of continuing the course of reproduction for many generations, although such reproduction from species so dissimilar may continue to present additional modifications of character.

Some French proprietors who are willing to incur present disbursements, and to await a considerable period for the returns, plant whole vineyards of seedlings, which form durable vines, and when raised from seeds of valuable sorts yield crops of good quality. I have understood that Mr. Overdoff of Pennsylvania, has a very flourishing vineyard formed of seedling plants, which were first reared in his garden, and after the first year, transplanted into his vineyard.

Ingrafting Vines.

The vine differs from other trees in having no liber or inner bark, nor cortical coverings, and it consequently may be ingrafted without its being requisite to bring the two barks in contact, as the sap ascends by the different capillary vessels without any distinction between liber, cortex, or wood, whilst the sap of other trees is exclusively conducted between the wood and the bark. Cleft-grafting is the method generally pursued in France; and in some districts of the departments of Gironde, Bouches-du-Rhone, Cote-d'or, and L'Yonne, this method of propagation is much practised and esteemed, but some object to inserting white varieties on red ones. The process of ingrafting the vine is by no means a novel one, having been long since in use as stated by Columella, and other ancient authors who give details on the subject.

It is not considered by French writers as of much importance, but I think in our own country, it offers far more beneficial results than in any other, from the well known circum-

stance that most of our native vines possess a degree of vigour and repletion of sap, which far surpass those obtained from other climes; the circumstance therefore of giving additional developement to foreign vines by ingrafting them on our natives, merits particular consideration, and may be the foundation of a new species of vine culture in our future vineyards. Speechly remarks, that in England, the ingrafting of vines is but little attended to, although of so much importance; as a bad vine may be improved without loss of time, and he states that he has had fine grapes from the same year's grafts, the shoots from which if permitted would have run from thirty to forty feet, the first summer. He mentions a vine of the Syrian kind in a hot house at Welbeck, which produced sixteen different varieties of grapes from as many graftings.

William R. Armistead, Esq. was among the first who adopted the practice in our own country, he having ingrafted in 1819, four vines of the native blue or bunch grape of Virginia, with the sweet water variety, which in the third season produced upwards of two barrels of fruit. And at his suggestion, Col. Gratiot made similar attempts by inserting "the Portugal or Lisbon grape, such as is usually received in jars, upon the Fox grape, the plants of which were transplanted from the swamps only the previous autumn, which experiment was also eminently successful."

The period for the operation is when the sap begins to rise, and it seldom fails of success when performed in the ground. If it is desired to have many varieties ingrafted on one vine, that can be done successfully by trailing the several branches under ground to the points desired, and then ingrafting each in the earth in the manner hereafter detailed. It is preferable that the scions be cut some time previous, and that they be preserved in the same manner as cuttings are until required for use. The principal benefit to be derived from ingrafting, is to transform a vineyard in a short space of time which contains many varieties into one, containing as few as may be deemed advantageous, or to entirely or partially change a vineyard, when the varieties contained in it are

deemed unsuitable or of little value. It also is the means of furnishing a prompt supply of exceedingly fine cuttings to be used for that mode of culture. Another advantage offered is, that the common wild vines of large size found in our woods and hedges, can either by being ingrafted in their respective positions, or by being transplanted into gardens for that purpose, afford the means for a prompt and abundant supply of fruit. Indeed the facilities offered by this process are such that no vine of indifferent quality need hereafter to be destroyed on that account, as it may be so readily converted to one of the most choice description. The graft should in preference have sufficient of the two years old wood to form the tongue which is inserted in the stock, with one or two joints of the one year old wood to rise above the stock; but when shoots of the last year have formed vigorous and well ripened wood, they will answer the purpose. I think two buds or eyes quite sufficient for a graft, and in general, more advantageous than a greater number; but where the stock is of extraordinary size, three buds may be allowed; the best size for a graft is that of an ordinary cutting, but where the stocks are exceedingly large, I think it desirable that the grafts should be larger than usual. The best stocks are such as are about an inch in diameter, but those of all dimensions can be used for the purpose. Dry weather is the most suitable for the operation, and the period generally selected for its performance in this latitude, is from the first to the tenth of April, although it has been effected successfully at a much later period, and in some cases even after the vine was in full leaf, where the scions were sufficiently retarded. In the southern states it should take place early in March or even sooner in some parts. A decided advantage is gained by its early execution, which is equivalent to a gain in the length of the season, and therefore allows time for greater growth.

The most common method pursued is cleft grafting, which does not essentially differ from ingrafting apple and other trees on the same principle. The usual course is to lay the stock bare, by clearing away four to six inches of the ground, or as

far as where the first roots appear, at which point it must be sawed off, and the surface made perfectly smooth. The stock is then to be carefully split with a strong knife or other instrument calculated for the purpose, and if necessary, a sharp wedge may be used to open the incision until the graft is inserted, which on being withdrawn, will leave the scion firmly retained in its position by the pressure of the stock. Where the vines are very large, two scions may be inserted, and if both succeed, one may be pruned off, or trained so as to diverge as much as possible from the other. It will readily be perceived, that the graft before insertion must be made of a wedge shape to suit the incision, and the tongue or slope should be from three to four inches in length. Vines thus ingrafted do not require clay or composition of any kind, but only to raise the earth over the stock and around the graft, so as to leave the uppermost bud even with the surface, after which nothing more need be done than to give them moderate waterings occasionally during dry weather.

The buds will expand in about a fortnight or three weeks, one only of which is usually allowed to grow, and this as it advances should be carefully trained to a pole, stake, or other support, and the superfluous lateral shoots be pruned or rubbed off. With proper attention, and in rich soil, they will grow from eight to twelve feet according to the variety, and in all ordinary cases fruit will be produced the first season, though this may rather be deemed a disadvantage, and should not be allowed except where it is particularly desired to test its character, as it serves to weaken the plant. Robert Sinclair, Esq. of Baltimore, ingrafted some scions of the Isabella on the Chicken grape, during the season of 1829, one of which grew twelve feet, and the other nine, and the lateral shoots on the two measured thirty feet. Another mode which comes under the head of pivot grafting, and which may be adopted where the stock is too large to be cleft, is to saw off the vine beneath the surface of the ground, then to bore a hole in the centre with a sharp gimblet or some other instrument calculated to cut smoothly, and to proportion the place for

insertion somewhat to the size of the graft, next trim the scion into a pivot form with a rounded point, so as to fit the hole, leaving a slight shoulder of bark on one side, and press or drive it gently into its position, the earth must then be raised around it in the same manner as before prescribed.

Some operators apply clay or composition to cover the place of junction, while others deem it of no importance, as the earth serves to exclude the air. In many cases this method has been particularly successful, and some shoots have grown from twelve to sixteen feet the first season, and produced from twelve to twenty-five clusters of fruit. Some persons state, that where the stock has been very large, they have attained equal success, by boring two or more holes in different parts of the wood indiscriminately, and inserting a scion in each, which grew in this manner as well as by any other course. In some cases the stocks have been removed from the woods to the garden at the period of ingrafting; and Mr. Herbemont, of South Carolina, states, that he has dug up vines in the woods in April, even after they had begun to grow and had leaves formed, which he carefully ingrafted and replanted, and that several of these produced ripe fruit the same season. Mr. H. has been also particularly successful in using the Isabella vine for stocks, and has ingrafted several hundred of them with his fine Madeira grape, (which is the same as the Warren or Warrenton,) many of which produced fruit the same year, and attained a length of from twelve to twenty, and even thirty feet with a proportionate thickness. In one case he has had a single vine to grow in four months, so as to cover an arbour seven feet high, and about ten feet square.

The skill of Mr. Herbemont has even turned the advantages offered to a new account, and instead of pruning off the lower branches, he has layered them the first summer with success, thereby having layers in the fall, made during the summer, from grafts inserted in the spring. So very speedy a course however may be more readily consummated in the southern states, than in this section of the Union, and layers made the second summer from wood of a year old, are much to be preferred.

A correspondent in Massachusetts writes me, that he has pursued split grafting with great success by using composition which he greatly prefers to clay, this he puts on warm, and ties over it a piece of bass very tight. Grafts set after this method into strong stocks of the Black Cluster grape, about the first of April 1829, grew fourteen feet the same season, and made strong wood: he thinks ingrafting may be safely performed in that State as late as the first of May. A friend in the island of Cuba, also advises me of his having been very successful in grafting many fine French varieties on wild vines of that island, which are there found in abundance, and thinks this may perhaps form a new era in the culture of the vine in tropical climates. In the autumn, the ingrafted vines should be treated the same as others of equal size and vigour, and be pruned accordingly, the weaker ones may be cut down to a few eyes only, and the larger ones be left of a length proportionate to their strength. They never fail to produce well the second year, and where the stocks are very vigorous, and the variety inserted on them is of the same character, they attain to a most rapid and extraordinary developement. It is asserted that grafts, particularly where the white are engrafted on the black varieties, are apt to die in eight or ten years, when apparently in full vigour, and where the wood is perfectly united; but this misfortune may not perhaps be without causes and exceptions, which a skilful culture may discover and avert. I think the insertion of the graft so low, that it may form roots from its own wood, is calculated in some degree to obviate the difficulty, and this can in most cases be accomplished.

It is almost needless to add, that all tales about ingrafting the vine upon the cherry and other trees, are alike fabulous with those of ingrafting the peach on the willow, the rose on the currant, and other similar accounts. Equally erroneous do I deem the remarks that the stock of the vine has a greater influence upon the graft than results from a similar operation performed on other species of fruit; but that such influence does exist in many and perhaps all cases to a certain

degree, I think I have sufficiently shown in a communication recently addressed to Dr. James Mease, of Philadelphia, and which I shall shortly make known to the public.

Upon small stocks which are about the size or but little larger than the scion, whip or tongue grafting is found to be preferable. Another method well calculated to ensure success, is ingrafting by approach, which is performed in the same manner on vines as on fruit trees.

Vineyards on Hills and Declivities.

Vines in France are rarely planted on the surface of the soil, but in trenches differing both in breadth and depth, sometimes regular, parallel and longitudinal, running from one end of the ground to the other, or transversal, and perpendicular for the length of the piece of ground. There are a great number of vineyards in France where the vines are naturally or by art, disposed in terraces rising one above the other. Lasteyrie has figured in the second volume of his work, entitled *Collection of devices adopted in Agriculture*, a hill of Catalonia which is completely arranged in terraces for the culture of vines. This being considered the most preferable mode, I will give explanations hereafter in what manner they may be formed with little expense by the means of transverse walls. Many vineyards which are located on steep hills or mountains, have a wall of stones placed along the lower side of each row, to keep the soil from washing; this is an essential point, and where vineyards are so located, must be considered a necessary part of the first cost of a proper preparation; and it is a general remark, that the more stones in a vineyard the better, provided they are not a preventive to suitable culture. If stones are not to be had for the above named purpose, logs of wood might be used. It is much to be preferred however, that vineyards on hills and declivities should be divided by terraces, made nearer to each other in proportion to the steepness, and these not formed by walls as is often the case, but by low hedges which prevent the earth from being carried off by ordinary rains, without

any danger of their being swept away themselves by streams of water during severe storms, as the numerous roots form a support for them against such effects.

The arrangement of the vines differs also on great declivities from that on other locations, not being ranged in straight lines, but planted in curves or in the form of an amphitheatre. And in order to equalize the maturity of the crops where several varieties are to be planted in the same vineyard, the earlier kinds should be planted in the most elevated parts, and the later ones in the middle ranges.

The Domestic Encyclopedia contains the following directions in regard to vineyards planted on declivities:—"To prevent your hills where they are steep, from being washed away by showers of rain, I would recommend short straw mixed with chaff, the shives of flax and hemp, the chaff of flax seed which is also an excellent manure, old half rotten salt hay or bog hay, free from grass seeds, which should be spread thin between the rows; if it be spread thick it keeps the ground too long cold and wet in spring, which retards the growth of the vines. The use of these I have experienced to be profitable, and very much to hinder the soil from washing. The following method has also been found very effectual, without doing injury to either the vines or the crop:—After the ground has been made loose and mellow, lay broad flat stones close along the lower side of the vines, these not being very heavy do not pack the ground too close, nor press hard upon roots of the vines; they reflect great heat up to the vine and fruit, which helps to bring it to full maturity, they preserve the soil against washing away, they keep the ground moist in the driest times, and hinder too much rain from penetrating the roots near the head of the vine, which chiefly occasions the bursting of the grapes after a shower of rain, when they are near ripe."

The effect of elevation upon the geography of plants merits our particular consideration by its influence on the vine. In Europe they generally reckon that a degree of latitude affects the mean temperature nearly in the proportion of one hundred and eighty or two hundred yards of elevation, or vice

versa: it is also the generally received opinion that where maize comes to perfection, the vine will succeed; but in France and other countries the culture of the latter has been successfully extended much further north than the former. De Candolle remarks, that the most elevated point at which he has found maize grown as a crop, is in the department of the Lower Pyrenees, above the village of Lescans, at about the elevation of one thousand yards. Now if we take our departure from that point which is in the 43° of latitude, and proceed five degrees upon the same meridian line,* we come to the neighbourhood of Mans, and to the south of the department of Ille and Vilaine, which is precisely the northernmost point where maize is sown as a crop.

The vines of Velai, says M. De Candolle, are those which are at the greatest elevation of any I have seen in France, cultivated as vineyards. The elevation of the town of Puy is computed at six hundred and thirty-two yards, and the vineyards that belong to it go up to about eight hundred. Now if setting out from that point, which is a little beyond 45° of lat. you take four degrees to the north upon the same meridian, you come to a stop between Rheims and Epernai, that is to say, very close upon the northernmost limit at which the vine forms a branch of husbandry, the town of Rheims being in lat. 49° 30′.

Planting Trees, &c. in Vineyards—Hedges to protect them.

The custom adopted in some wine districts of planting trees in the vineyards, such as the peach, apple, olive, nut, and cherry, is very improper, for as the direct action of the sun is the main essential, in order to mature the high qualities of the grape, the effects of this powerful agent should be in no wise counteracted, and every tree therefore that can interpose a shade and shut out its rays, at the same time that it exhausts

* I say upon the same meridian line, because it is well known that in the same latitudes there exists a great difference between the east and west of France.

the soil, should be cleared away. It is true, that in the year 1797, the French vineyards in the departments of L'Yonne, and Côte-d'or, that were not sheltered by trees, had their vines frozen, but the principle notwithstanding this exception, is strictly correct, and without particular attention the grapes where so situated will not attain that ripeness and maturity of the saccharine properties which constitutes their chief value. The best French authors however state, that although trees and hedges are injurious to vineyards, when so close as to come in contact with the vines, and to shade them or cause a greater degree of humidity, still hedges are of great advantage when planted at a short distance, and in such directions as to shelter the vineyards from the cold east and north winds, and from the moist west winds.

Trees being acknowledged as injurious when planted in vineyards, are not other vegetable productions likewise objectionable? When the vines are reared in nurseries, all kinds of vegetables are very injurious, by drawing from the earth a portion of its nutritious qualities, and it follows, of course, that they are so in vineyards, in proportion as they are culculated to drain the soil. Of this character are the different species of grain, also turnips, potatoes, peas, beans, cabbage, &c. Lupins and lentiles however are said to be no wise injurious. A young vineyard is injured more by cultivating other vegetables in it than an old one, because the roots spread through a less proportion of the ground, and therefore have less means of support, and the progress of new plantations is exceedingly impeded by pursuing this course. It is therefore preferable that nothing be introduced that can in any degree lessen the strength and richness of the soil.

Berneaud recommends that the rows be made four and a half feet apart, and the vines planted ten feet from each other in the rows. He also recommends, and it seems very consistent with good policy, that the vines be placed opposite in every second row, so that those in the intervening ones be opposite the centre of the intermediate space between the vines of the other ranges; a plan of arrangement often adopted among us with plantations of other descriptions.

Propping and training.

In a great number of vineyards, especially those of the north of France, they place in the ground near the stem of each vine, a pole or stake to which the shoots are tied by means of bands of straw, bass, rushes, or branches of the osier or willow. This practice is considered by them as indispensable, but nevertheless there are some who do not pursue it. The advantage of these poles is, that the grapes are better exposed to the benign influence of the solar rays, and that a greater number of vines can be placed on a certain space of ground.

The principal difficulty which the French find in this course is, that it increases the expense in consequence of the high price at which the poles are sold, the labour necessary for sharpening them, and for placing and displacing them; also in restraining and straitening the shoots, which are naturally bent, so as to favour the direct ascension of the sap. Notwithstanding the decided preference entertained for training the vines on poles, various methods are proposed by French writers as substitutes for this practice, on account of the enormous quantity of wood which is required, and the rapid diminution of the forests in that country; but as we labour under no apprehensions from such deficiency, we shall of course pursue that practice. In the vineyards in the environs of Rochelle, and on the declivities near the town of Argence, department of Calvados, no poles are used, and the branches trail on the ground until the grapes are nearly ripe, they are then all raised up and tied together at the top, and thus form their own support; the fruit being outwards is by this course exposed to the sun, but the crops are inferior and deficient.

In some French vineyards where the vines are of a very vigorous character, two poles or stakes are used for each, and twice the quantity of wood allowed to the vines, and in others, several slender poles are stuck into the ground around the vine in a circular manner, to each of which a shoot is trained or fastened; but in such cases a proportionably greater

distance must be allowed between the vines when the plantations are formed.

The proper period for poling the vineyards, is immediately after the first spring cleaning, before the vines commence growing, sometimes however it is done after the second cleaning, at which time the shoots have acquired a part of their growth. They should be put deep in the earth in order that they may not be blown down by the winds, and great care must be taken during the operation, not to injure the roots, nor break the buds of the vines. In France, the trees used for poles are principally the pine, the fir, the tree box, and oak and chesnut split up; willow, poplar, and other trees whose branches are prompt to vegetate, should not be used for poles. The posts and poles should each have the end that goes into the ground well covered with melted pitch. Col. Gibbs informs me, he has found universally, that poles were better than trellices; indeed in vineyard or field culture, this method of supporting the vines will almost necessarily be adopted, as well on account of the advantages it offers, as the increased expense that the use of trellices would create. However, those that prefer that species of culture as generally pursued, will find the subject discussed hereafter, under the head of "Garden culture."

The colder the climate, the lower the vines should be trained, in order that the grapes may ripen better, because experience teaches us, that those which are a short distance from the earth, profiting from the shelter which is afforded, and from the caloric which emanates from it during the night whenever the temperature of the atmosphere diminishes, acquire a superior quality.

When vineyards are located on steep hills, the vines can be trained higher, because the grapes profit from the reverberation of the sun by the earth, in the same manner as if planted against a wall. The operation of tying the shoots is omitted in the greater portion of the south of France, while in the northern departments it is deemed of the utmost importance. Where a great desire exists for economizing, a discrimination may be made between the vines of stronger and those of weak-

er growth, but I doubt the wisdom of such parsimony. The most suitable time for tying is just after the flowering is over, the young shoots have then attained a considerable growth, and being weak require to be protected against the effects of winds, which are apt to break them entirely off if not thus protected. In the operation particular care should be taken not to interfere with the clusters of fruit, and the branches should be separated as much as is convenient or consistent.

It has been observed that the vines of our country when in their natural state, seldom or never throw out bearing shoots, until they reach a lofty position near the tops of the trees on which they ascend, when the branches assume a horizontal or descending inclination. From this fact horizontal training has been deemed preferable to that in an oblique direction or fan form. Dr. G. W. Chapman, of New-York, states that by experiments he has made, he finds that the shoots coming from those branches bent downwards are more productive than from the ascending ones.

From a due consideration of all the attendant circumstances, it seems necessary that we should adopt in the training and consequent pruning of our native vines, some principles of operation different from those usually applied to foreign ones, it being a necessary requirement resulting from the great distinction in character, as the methods pursued most successfully with the one, would doubtless often prove inappropriate and perhaps highly injurious to the other.

Low training.

The practice of low training was first pursued by the Greeks, and was introduced by the Phocian colony into the district of Marseilles. The knowledge of it has been spread with the culture of the vine far to the north where it has been generally adopted, and is esteemed the most easy and advantageous for cold latitudes. Various modifications have however been introduced, and the height to which the vines are trained varies from one to five feet.

In Medoc, and also in the environs of Grenoble, Lyons, Orleans, Autun, and even in some vineyards of Rheims, and

Laon, the vines are attached to low stakes or trellices raised only about a foot above the ground. In the departments of Bouches-du-Rhone, Aube, Gard, Herault, and in fact in most of the southern departments, the stocks are very wide apart, and are allowed to be but two feet in height, and the fruit branches are trained along at about the same elevation. In some vineyards the stocks are very short, and so strong that they support themselves, and the young shoots rise from them and fall over to the earth. In other districts the vines are left entirely to trail on the ground, but the wines, as has been already stated, are in such cases inferior and the crops much less.

In the young vineyards near Bordeaux, Angers, Lyons, &c. where the plants were formerly left unsupported, they have adopted the use of props on account of the great vigour and length of the shoots.

High training.

In adopting the practice of high training according to either of the modes in use, it is requisite that the varieties selected as well as the plants themselves be of a vigorous character, and that the soil be rich and capable of supporting the additional growth required. At the commencement of this species of culture, the strongest shoot only is left to each vine at the first pruning with about a foot of the new wood, and all the buds or eyes except the two uppermost are rubbed off and destroyed. At each subsequent pruning one additional branch is left with two eyes to each until the fourth pruning, when four or five shoots may be left, the vine having attained the desired height. If the soil is not highly favourable you must in succeeding years adopt the same system of pruning as prescribed for short pruned vines, but if it is of excellent quality, and the other circumstances also favourable, you may leave two or three shoots of eighteen to twenty-four inches in length, with all their eyes upon them, which must be curved or bent over and tied with the ends downwards to the several props.

High trained vines are less subject to injury by frost and produce more fruit, but the wine made from them is in general

inferior to that from low trained vineyards. High vines are also more expensive as they need taller props, and require at least three to each plant, one of which must be near the main stock, and the others at convenient distances, the stem and branches must be tied with strong twigs of osier, as from the quantity of fruit they will require to be well supported.

Sautelles, or Pleyons.

The culture by sautelles is allied to the preceding, and is principally in use in vineyards where the greatest desire is quantity. In this case the branches are left nearly their whole length, and after being inclined or bent in the form of a bow are attached to poles with the end downwards, and a twist given to each where the bend commences, in order to impede the passage of the sap, which might otherwise flow too rapidly and run to leaves.

At the time this operation is performed, a new shoot is left to grow, which causes the root to suffer but little, because this shoot no more than makes up for the feebleness of the vegetation of the main branch. It is worthy of note that if the long branches are not soon bent, the produce instead of being great, will be but small, for the sap rising with rapidity, bursts the wood-buds which are the most elevated, and only glides by the fruit-buds which are the lowest, whose fruition is often entirely destroyed when the shoot is very vigorous, or the season moist and hot. Vines planted on arid soils will not always support this species of culture, the same has been remarked of the feeble varieties from their nature itself. In some vineyards near Paris, and elsewhere, they bury the ends of the sautelles in the earth the spring after their crop has been produced, and form layers from them that are cut off the following winter, which practice is recommended.

In Orleans, sautelles are often left two or three years, which is very injurious to the crops, as in such case the branches and berries become small. This method of pruning and training may be adopted for covering bowers and arbours, where it is requisite the shoots should be of considerable length.

In Franche Compté another mode is pursued. No stakes are placed at the sides of the vines, but short props are set in the ground which have forks at about two feet from the earth, across which poles are laid on which short stumps have been left at about a foot from each other. In some cases these poles are rested in the forks of old vines. The main branches are then trained along on them from which the new shoots spread in every direction, and the vineyard seems covered with foliage while clusters of fruit hang beneath in the shade. The labourers have to creep under in order to destroy the weeds, which are less numerous however on account of being overhung by the vines. This manner of training is extremely inappropriate in the colder latitudes, and can only be found useful in very warm localities, for the sun being shut out from the fruit, cannot perfect the high vinous properties which constitute almost the sole value of the crops.

Pyramidal or conical training.

This mode pursued in many German vineyards has been also adopted in a number of French ones, from a desire of obtaining large crops with less uncertainty, labour, and expense. In planting vineyards for this object, the only difference to be observed is, that the rows be eight feet apart, and the vines set out at the same distance checkerwise in the rows.

The first operation in giving form to the vines takes place at the second annual pruning in autumn or spring, when two shoots should be left, one with five, and the other with six eyes. In the spring of the third season, strong posts nine feet high and six inches in diameter, are to be placed in regular rows, one to each vine, around which the two shoots are to be trained spirally in the same direction, with a space of about four inches between each turn. The branches are regularly tied, and the main shoots when they have attained a suitable height are topped. A small crop of fruit will be produced this season, and at the annual pruning the two highest shoots are treated as before, and the lateral branches called side runners, which are intended to fill up the pyramid, are cut down to three buds each.

The ensuing year which is the fourth, the vines will begin to exhibit the pyramidal form, and may be made triangular, quadrangular, or hexangular at the option of the cultivator, but a circular form is generally preferred as most convenient. The training of the two principal branches is continued as before, in a spiral direction; and when the berries are formed all the shoots from the side runners are shortened to six eyes, which in addition to giving them strength, facilitates the circulation of air: the loftiest shoots must also be tied and topped as in previous years.

This season a crop of from twenty to thirty bunches will be produced by each vine, which is as much as ordinary vines do when at full size; although these will not then have acquired more than one fourth of the height and breadth they are intended to attain. In the spring of the fifth year, as that season is usually selected for the operation in cold climates, the two upper shoots are pruned and trained as heretofore, and particular care taken to tie the different branches before vegetation commences, the last year's shoots on the side runners are then cut down, the strongest to four buds, and the weaker to one and two buds; and when the fruit has again formed, they are topped and shortened as before. A crop of thirty to sixty bunches is generally produced from each vine this season. The same course of pruning and training is pursued the seventh, eighth, and ninth years, until the spiral shoots have reached the top of the post, after which all that rise above it are pruned off every spring, and the lateral shoots are allowed rather more length. During these years from fifty to one hundred clusters will be produced by each vine.

In the after management, there need be no fear of allowing too great an extent to the circumference, and if it is desired to continue the shape, the pruning and clipping can always be executed in accordance thereto, proportioning those operations in all cases, to the strength and vigour of the branches. Two eyes will suffice for the young shoots, and some of the side runners and laterals should be occasionally thinned out where too close and numerous, as in such case they weaken and injure each other and lessen the produce.

The circumference of the base should be twice, and in tempestuous situations thrice that of the summit, as the vine thence derives strength and support. The crops produced by this course of culture are very abundant. A vineyard of two thousand stocks trained in this manner with every necessary attention, yields an annual produce of twenty-six thousand gallons of wine, while on the other hand six thousand vines cultivated after the common mode of low training, yield in ordinary seasons but from eight hundred to thirteen hundred gallons, and in the best seasons only two thousand six hundred gallons.

Counter espalier training.

This system is now pursued in a number of the French departments, and much approved. In plantations where it is adopted, the rows are planted six feet apart, parallel and athwart each other, so as to be equally benefited by the sun. The training commences at the third or fourth years' growth of the vineyard, at which period, posts about four feet high are placed in regular lines, at half the height of which there is a line of lattices placed crosswise, and at the top another range placed in a straight line.

When the vines are of sufficient growth, the shoots at both sides are led backward and forward in an oblique manner along the range of cross trellices, until the espalier is perfectly formed, and the spaces at each side of the stocks are entirely filled up. They are trained after this manner until they reach the upper trellice to which they must be tied. After the trellices are completely filled in this way, the ends of the shoots should be clipped off. This mode of serpentine training has a very advantageous effect on the circulation of the sap whose passage is rendered more regular and conducive to an abundant yield. The shoots have the full benefit of the solar heat, by which means the fruit ripens well and perfects its flavour, and the crops are rendered abundant.

Pruning.

This, as well as the other operations should be performed when the weather is dry, the advantage of which experience proves, and the instrument should be sharp and calculated to cut smoothly and expeditiously. There are indeed three seasons when experienced vignerons deny access to their vineyards; first, when the ground is wet, because the labourers passing to and fro press down and pack the earth; secondly, when the vines are in blossom, because disturbing them in any way at that period is calculated to produce an abortion or coulure; thirdly, when the fruit is at or near maturity, because the people are apt to pluck the fairest and best ripened grapes which is considered an injury to the whole bunch.

In the arts of horticulture, I have never taken as a positive guide the rules of any other country; convinced, as I am, that the exercise of common sense reasoning, will bring one to the wisest conclusions as to the course to be pursued. Thus, with regard to vines, it is evident that as the small lateral branches are for the most part unproductive, and as their absorption of a vast portion of sap, which might otherwise pass into the main and fruit bearing branches, renders them worse than useless, they should be in no way encouraged farther than is absolutely necessary to the safety of the plants.

All forcing of the natural functions of the vine, or of any other plant, is alone rendered necessary by inappropriateness of the climate and other circumstances, to afford equal success by a natural development.

A person to prune skilfully or to direct the labours of others, should possess a knowledge of its effects both from theory and practice, so as to be able to foresee the effects of its every application. The object of pruning the vine is to increase its produce, to obtain from it annually equal crops, and to render the berries larger and of earlier maturity. Its operations are based upon the same principles as when applied to other trees; but the vine possesses one peculiar characteristic, which is, that the fruit being produced on shoots

of the same year, renders this management much more simple. In fact it is sufficient to know that the lower buds yield the fruit-bearing shoots, in order to understand it; and to indicate to us that it is proper to cut the past season's shoots down to as many eyes or joints only, as we deem the plant capable of supporting, the number of course is to be varied according to the vigour, soil, nature of the variety, or other causes, and the operation is only to be extended to shoots of the preceding year. The deviation of the sap from its perpendicular passage, effected by annual prunings, is favourable to the production of fruit by causing it to flow with less rapidity; and even a sterile vine (those truly male excepted) may be made to yield fruit the ensuing year, by breaking the shoots between the two growths at about half their height, without entirely separating the upper half, and there is no injury where branches have not produced fruit the previous season, in allowing them to remain of good length when pruning them, because their sap not having been exhausted, can support a large crop. Short-jointed shoots being generally deemed the most fruitful, should be left in preference to long jointed ones, if equal in other respects.

On this subject we can only lay down general rules to be adopted, wholly or partially according to the circumstances. As relates to our native vines, I think the precise period of performing the principal pruning, is not a matter of very great moment; for as there is no danger of injury arising from it, the fall, winter, or early in the spring will perhaps answer equally well. On this and the other operations connected with the subject, every vigneron should in frequent instances exercise his own judgment.

The vine is among the number of vegetable productions whose foliage and fruits are wholly produced on the shoot of the same year. This fact it is important to be acquainted with, for it is upon this, that is based a part of the principles upon which the culture of the vine is founded. It being also at the lower part of the shoot that the clusters of fruit are formed, that is another circumstance equally important in the

subject to be taken under consideration; for not only must there be a young shoot to produce wood, but that shoot must spring from the wood of the preceding year, as those which spring from the old wood are usually sterile. A pointed bud indicates a sterile shoot, and on the contrary, a blunt or rounded bud announces a fruitful one, and the larger it is the more productive.

Notwithstanding the pruning operation requires to be well understood, still where labourers are correctly instructed, it will not be a matter of great difficulty, and in France, it is done every where by women and children. It appears however to there be an object of complaint, that it is frequently neglected or badly done, and that deficient crops and bad wine are often caused by two much or too little pruning.

Improper pruning has even an influence on the crops of succeeding years, and upon the duration of the vine. The most important points to be considered, are: that when too many sterile shoots are left on the vine, they abstract and consume a great portion of the sap which should have nourished and matured the fruit; that when too many bearing shoots are left, they exhaust the vine, and cause not only the subsequent crop to be poor, but even the vine itself often dwindles for some time. A greater proportion of shoots and leaves should be left to vines located on dry hills, and on those having a southern exposure, and less in shady and moist situations, because in the first instance it favours the enlargement of the berries, and in the latter it prevents them from being too watery. It sometimes happens that the wood of the shoots is not sufficiently ripened before frost, and that they are consequently injured thereby. In such cases it is best to prune close, that is, down to but few buds, in order that vigorous shoots may replace the injury sustained, and in no case should green or immature wood be suffered to remain, as it would not fail to perish afterwards, and even to affect in some degree the mature wood connected with it.

Where vines have been injured by frosts or bruised and broken by hail, they should be pruned sufficiently close to take off all the injured or defective wood; this operation ought

not however to be hurried, but time should elapse sufficiently to show if any of the buds have vigour enough remaining to allow them still to produce fruit which they frequently do even in such cases. No neglect should take place in removing at the annual winter prunings all wood that is old and dry, which should be cut off close to the healthy shoots, for when suffered to remain, it retards the circulation of the sap, and its influence is felt by the healthy branches.

The vines subjected to low pruning are cut down to two or three eyes, and those high trained often to a single eye, because the vegetation of the young shoots is strong in proportion to their reduction in number, and to the diminished height of the plant. It is most prudent however to leave more than a single eye, because there is a risk that the one may perish, which not only causes a loss of the fruit, but that of the vine itself, if it is a weak one.

Judgment must necessarily be exercised in this operation, and more particularly in a country possessing so much solar heat as our own, and it is indispensable that a number of buds be left proportioned to the strength of the shoot and the abundance of sap, for vines trimmed too much and pruned too close, afford less wine, especially if they are of strong growth. Further remarks on close pruning upon the system adopted at Thomery, &c. will be found under the head of "Garden culture."

It seems very certain that the extreme heat of our climate renders it optional with us whether we shall pursue or not, the system of close pruning to its fullest extent, as adopted in many European countries. I must confess myself considerably a convert to the system of long pruning in that portion of our country where the summers are long and the heat great, and in regard to our most vigorous native vines, I think this system alone can be attended with the greatest success. Even in France long pruning is preferred where the growth of the vines is very vigorous. In support of the opinion that close pruning is not requisite to abundant produce of our native vines, the most productive Scuppernong vineyards in North Carolina,

are in many instances not trimmed at all, and the wild and untutored vines which cover our hedges and mount our loftiest forests, bend beneath the abundance of their produce.

Much greater space must be in such case allowed in plantations of native vines, and to show the extent to which this may be carried, an instance will be hereafter detailed where eight Scuppernong vines cover a quarter of an acre, and produce crops of amazing quantity. The opinion has also been already advanced, that many of our native vines require a different mode of treatment from that bestowed on foreign ones, and to render the information as complete as possible on that head, I shall introduce in the course of the work the most approved modes that have been adopted by our countrymen.

Proper period for pruning.

The celebrated Olivier de Serres affirmed, that late pruning was advantageous in the greater produce of fruit thereby caused, and advanced the maxim in his work, that the earlier the vine is pruned, the more wood it makes, and the later the more fruit; and he founds that opinion on the circumstance, that when the pruning is done late, there is a loss of sap, and that when vegetation is weakened, but not in too great a degree, it augments the number of bunches and lessens the chances of abortion in the flowers.

It is nevertheless acknowledged in all vine countries, that the earlier the pruning and the sooner the sap flows, the more vigorous are the shoots and the more abundant their produce. Pruning therefore immediately after the fall of the leaves is advantageous in all climates where there is no danger that frost during the winter may injure the branches, nor that the spring frosts may affect the young shoots; but in cold climates it is necessary to retard this operation as much as possible, and likewise in other localities, where the expositions are subject to spring frosts. The pruning of the vine before winter in cold climates renders the remaining part of the shoots more sensible to hard frosts, therefore it is not pursued in French vineyards

north of Lyons; for if done in the fall it would be necessary to leave an extra bud, from a calculation that the upper one would be destroyed by frost or otherwise injured. It is of importance where a vineyard comprises many varieties whose period of maturity differs, to prune the late kinds soonest in order to accelerate their shooting.

Mr. Le Ray de Chaumont deems it the best time to prune the vine in this part of our country when the hardest frosts are passed, which in this latitude is about the fifth to the tenth of March, and still later at the north, and earlier to the south. Others deem the fall the preferable period, and when so much difference of opinion exists, it would be well for every one who has an extensive vineyard at stake, to make experiments on a few vines at each season so as to decide for himself. If the autumn is preferred, it should be performed after the wood is well matured and the leaves have fallen, and on a fine dry day.

Berneaud says that autumnal or early winter pruning is imprudent in the colder latitudes, as by advancing the vegetation it renders the vines more liable to be injured by frost, and that it should be deferred until the freezing season is past. He recommends the first half of March as the best period for vineyards in the central and northern French departments, and for countries of similar temperature.

The following article on the subject, is from the pen of the very intelligent secretary of the Maryland society for promoting the vine culture, J. C. S. Monkur, Esq.

"It is often asked us, when it is the *proper time* for pruning grape vines? We observe in the works upon the vine, a great discrepancy of opinion on this particular part of its culture. That this is an all important procedure to the health, duration, and profit of the vine, no one can contend to the contrary; but we are inclined to believe, that the great stress urged on the *particular time* it should be done, does not deserve the consideration which has been given it. In accordance with our observation, the *time* bears but little relation in importance to the *manner* of its performance, provided we shall have it finished *before* the commencement of the circulation of the

juices peculiar to the vegetable. Hence the difference of time observed in the writings of the different individuals upon this subject, who have, no doubt, been guided in their choice by the effect of climate upon the production of early and late vegetation. Some insist it should be done about the middle of October, or at the fall of the leaf, '*rather*' than defer it till spring, because the tender parts of those young shoots, if left on, are subject to decay in winter, or they are apt to grow late in the year, so the tops of the shoots are tender, and early frosts will pinch them, and then they frequently are killed down a considerable length, which weakens their roots; but if they are cut off early in autumn, the wound will heal over before bad weather, and thereby the roots will be greatly strengthened.' On the other side, the advocates for spring pruning, tell us the *proper time* for this operation, in the middle states, is the latter end of February, or first week in March, much earlier in the southern states, and very little later in the eastern. Forsyth cautions us not to prune till the beginning of February, unless in case of an uncommon forwardness in the season. It is common, he continues, with some, to begin pruning soon after the fall of the leaf, before the wood becomes hard; but if the frost set in before the wood is hard, especially after wet summers and autumns, it will be much injured. He has seen vines almost killed after autumnal pruning. In the Vine-dresser's Manual, by Thiebaut de Berneaud, it is remarked, 'that the principal point is to know and seize the right time for pruning. To do it too soon advances vegetation and exposes the young buds to the nipping of the cold, or even spring frosts; if too late, it retards the development of the buds, and perhaps destroys the fruit buds by their becoming drenched with the bleeding sap during the night; or perhaps a late frost happens, and finds the retarded sprouts so backward and tender that it will entirely destroy them. In some warm countries, some pruning should be performed after the fall of the leaf; it gives the grape a greater chance for ripening and becoming sugary; but to prune in fall or beginning of the winter in cold countries, is imprudent: it is proper to wait

until the black frost is over; and it should only be done when the weather is fair, dry, and without appearance of rain. After the sap begins to circulate, it is improper to prune the vines, unless such as are sprouting too luxuriantly, and which require to be weakened; those in a proper condition it weakens too much; they seem exhausted and yield only poor fruit.' However, in despite of the directions before us, we have for these six years pruned a large collection, both of foreign and native vines, for cuttings for the gratification of friends, in every week, from the fall of the leaf to the middle of March, without having from very close attention, even observed any injury done; and therefore feel satisfied, that it can be performed safely at any time after the complete fall of the leaf, until immediately previous to the circulation of the sap, which effect, sooner or later takes place, according to climate, situation, and disposition of the vines. This process we discover, usually happens in this state, from the beginning to the middle of March, yet we are aware that certain species of the vine, are more forward and begin vegetation earlier from disposition and situation than others; but it will be in time, if pruning be done in Maryland and the other southern states, the last week in February or the first in March; but by no means should it be delayed longer than the middle of March. It is the *manner* of pruning that deserves our serious and attentive consideration; for on its correctness, doubtless, very much of our future success depends."

Clipping and topping of the vine.

One of the operations of the summer pruning takes place after the fruit is formed, and is called clipping. It is intended to remove the superfluous shoots, in order to throw the strength into those bearing fruit, and it also affords more air to the plant. In performing it, the useless branches should be pruned close to the stalk, but the laterals should be taken off between the first and second joint, and in no case should they be twisted off or broken. Where two or more shoots come out at one joint, but one of them should be suffered to remain.

A sound discretion should be exercised as to the number of shoots to be pruned off, for by leaving too great a number to form new wood, we deprive the fruit branches of the necessary support, and by allowing too many fruit bearers we exhaust the stock, the effect of which is felt for several subsequent seasons. This measure should be pursued several times during the season, according as the humidity or dryness of the weather may by their influence on the growth of the vines render it necessary.

The branches pruned off from the vines may be used as provender for horses, cows, and sheep, which are very fond of them; but as they are very heating when eaten in a green state, it is best to spread them until sufficiently dry, and then put them in stacks or barns for winter fodder, when if mixed with hay or straw, cows will fatten upon them, and their milk be increased both in quantity and quality.

There is another operation that comes under the head of pruning, which is called topping, or pinching off the shoots, and consists in taking off the extremity of the shoot, in order to stop its growing longer, and to enlarge it as well as the fruit. This is practised in nearly all the vineyards in the north of France, but not in those of the south. If executed properly and moderately, it produces the effect above mentioned; but if done too soon or immoderately, it not only tends to different results, but retards in a great degree the maturity of the grapes, because new shoots spring up which draw off the sap, more especially if the weather be rainy. As it is when the berries have nearly attained their size that this is to be performed, it should consequently be confided to skilful hands.

We stand much in need of some general principles applicable to our native vines by which to regulate the summer pruning, for the adoption of European maxims in this case will be sometimes attended with injurious results. I have found that pruning off a great portion of the young shoots of the Isabella vine at midsummer, when the fruit was about half or two thirds grown, caused a great portion of the berries to decay, turn black, and fall of, which I take to be another proof that the

superabundance of sap generated in our vigorous native vines must be allowed greater facilities for passing off through its natural channels.

In regard to pruning off the tendrils which some consider important, it has been proved to yield no apparent good or harm. In some places they take off the leaves of the vines in order to make the fruit ripen sooner by exposing them more to the sun, but this nearly always has a contrary effect, and when done too soon or to too great an extent, alters the flavour of the juice. Another point worthy of consideration is that the foliage by protecting the fruit from cold winds, and stopping the passage of the warm vapours which rise from the earth during the night, produces more effect than the rays of the sun, which at that season are feeble and often obscured by clouds and fogs.

Taking off the foliage is therefore of no benefit in vineyards and of no use except in giving more colour to table grapes, such as the chasselas, &c. and it would not probably be much practised in Europe, if they were not in want of the leaves as food for cattle. At all events it should only be resorted to when the summer has been so moderate as to create great doubts respecting the maturity of the grapes, which is not likely to often happen in our country, where the quantum of solar heat in the most unfavourable seasons, is fully adequate to the maturity of our native varieties, and no doubt by proper attention, equally so as respects foreign vines when appropriately located.

Pruning and treatment of a young vineyard.

The first year after the plants are placed in the vineyard, I would allow only one shoot to grow, and an examination for this object should take place as soon as the scions or rooted vines begin to shoot, leaving only one of the most promising, and pruning off the rest; this should be carefully pursued every three weeks throughout the season, during which period, all lateral branches should be quickly taken off, as they not only impoverish the main shoot, but greatly prevent the ripening of the wood.

At the regular fall or winter pruning, this shoot should be shortened to about three or four eyes, according to the strength of the plant, and where very weak, it would be best to leave but two eyes, observing always to cut off the shoot three inches above the uppermost eye of those that are to remain. During the second summer, there will be no further attention necessary, but to keep down the lateral shoots; in doing which, you should proceed thus:—Having left two of the most promising shoots, and rubbed off all the others, continue to examine the vines every two or three weeks, and carefully prune off all lateral shoots whatever, throughout the season; in doing which, I have found it of advantage, where the lateral shoot was strong, to leave the first joint remaining, that it may take off the superfluous sap, and prevent the bursting of the main bud, which should not push out till the ensuing season. These single joints thus left remaining, can be altogether taken off at the final pruning. This course will bring you to the conclusion of the second season, when at the autumnal pruning you should proceed as follows:—To the very strong vines, I would leave eight buds; to those less so, six; and, to those which still seem quite weak, from three to four buds, according to your own judgment on the subject.

During the third summer from three to four shoots may be left, and the same precautions used in suppressing laterals, &c. as before prescribed, and they can in autumn be pruned down to such number of buds as you consider the vine calculated to sustain. There is another point to be considered in the pruning operation, which is, to preserve about an equal proportion of wood for each side of the vine, for where a great difference is made in this respect, the sap is apt to be drawn too much to the stronger one, and thereby weaken and impoverish the other.

In pruning, the knife should be made to enter at the side opposite the uppermost bud left, which will cause the highest part of the slope to be above the eye, by which any bleeding or drops of rain will pass off at the lower side of the slope without injury to the bud. At the fourth pruning the vine

will have attained its proper shape, and from that period they are classed and trained according to the systems of short and long pruning, and therefore no further directions will be found necessary than to follow such of the general principles laid down as may be deemed best calculated to ensure success, and to prune frequently and sufficiently, so as to stop at all times the lateral shoots, where they are calculated to impoverish the vine without any manifest advantage; in a word, to force by art into the main branches of the vines, that sap which, without such aid, would be lost in superfluous, weak, and useless shoots.

Pruning to restore the vigour of vines—Taking off the bark—Laying bare the vine root.

A vine may be renewed by cutting it down below the surface of the soil, and suppressing the most of the shoots which spring from it. In general, unless it be necessary to form provins to fill up the ground, there should be but one left, and that ought to be the strongest; this should be pruned the ensuing winter down to a few eyes as with a perfect vine; sometimes suckers keep springing up from the root for several years, which must be destroyed. This manner of renewing the growth of vines is founded upon the principle that the vigour of trees is increased in proportion to the regular course of the sap, and to its not being caused to deviate in its course by angles or windings; and these it is well known are numerous in an old vine that has been annually pruned, whereas there are none in a shoot which rises directly from the root. This method is pursued only in a few localities, and it is to be regretted that it has not been more generally adopted in cases that require it. In some instances where vines have undergone great exhaustion, they are allowed to lie fallow as it is termed, during which period they receive no pruning.

With all trees the removal of the old and rough bark is found of great benefit, and this course has been applied by many French vignerons to their vines with equal advantage. Its effect is by allowing the new bark a more full expansion

to encourage the growth of the shoots; and it also destroys great multitudes of insects which usually shelter themselves beneath it, and deprives others of the means of concealment and preservation. Its general influence is to produce a greater development of the plant, and it is therefore efficacious in advancing its health, and increasing the quantity of the fruit.

I notice a procedure recommended by French authors, of which I must acknowledge I cannot see the benefit. This is, to remove the earth at the beginning of April from around the stock to the depth of five or six inches or more, for the purpose of destroying all suckers and superfluous roots. For suppressing any shoots this procedure does not seem requisite, as so very few ever make their appearance in that position, that it would not be worth the labour, and as the few that may occasionally appear can be otherwise removed with so much less trouble. That the base of the vines should be entirely free from suckers, all must agree in opinion, and if other less easy methods are insufficient for success, then that of clearing the soil away around the vines may be adopted; but the vineyards among us, so far as I have seen, are very little prone to form an abundance of shoots beneath the surface of the ground. As to suppressing any portion of the roots, I deem it an injury, and therefore the practice in that respect is worse than useless, for it may be taken as an axiom in horticulture, that the more perfectly the roots are allowed to form and extend themselves, the more vigorous will be the plant and the more abundant its produce. Some recommend also where the branches on one side of a vine are more flourishing than on the other, that a part of the roots be cut away on the luxuriant side, but under such circumstances it is certainly more advantageous to enrich the soil with manure near the part least vigorous, and to thereby afford it sufficient nourishment to compete with the other.

Girdling or Incisure.

This operation is best performed with scissors expressly calculated for the purpose, the two edges of which form a ring

when united, and thus encircle the shoot. A sharp pruning knife, with a smooth edge and hawk's bill, will also answer the object, but will not execute the work with equal expedition. It is more particularly pursued among us, in order to advance the maturity of the fruit, and increase its size and quality. Its primitive introduction among the ancients was to prevent the coulure or blight; and Theophrastus, Pliny, and various other writers, mention it as a practice adopted by the vignerons of their respective periods.

It has also been recommended and practised on various trees by Olivier de Serres, Magnol, Buffon, Duhamel, Rosier, Thouin, &c. the latter of whom carried his experiments to a great extent, and proved its powerful effects not only on the various species of stone fruit, on nut and berry-bearing trees and vines, but on various other families of the vegetable kingdom. The principle upon which it is based, is the well known theory of the progress of the sap, which ascends in the wood and descends through the bark, and which by this process is retained above the incision, at the same time that its ascent through the wood is not prevented, by which circumstances a far greater proportion is distributed throughout the upper part of the branch, thereby causing the vegetation to be greatly increased, the fruit and branch to be enlarged in size, and the maturity of the former to be advanced.

It may be advantageously adopted in very rainy seasons, and when the cold or dampness is such as to render the maturity of the crop very uncertain. But in vineyard or field culture it should not be resorted to in fine seasons, as its object there is simply to counteract the injurious effects, or the unfavourable variations of climate; and it should only be applied to strong and vigorous vines, and then not frequently, unless they are particularly sterile and subject to blight. It may be done on either the old or new wood, and in Europe is generally confined to that of the preceding year; but one of our most intelligent experimentalists, S. G. Perkins, Esq. of Massachusetts, recommends operating on the two year old wood; when done on the young wood, the shoots are apt to

be broken by the wind, which inconvenience is not felt by the old wood, which is firm and strong.

There are two periods for its performance, having different prominent objects in view; to prevent the blight of the blossoms, it should be performed between the time the sap begins to ascend and that when the flowers expand, and the period generally preferred is from six to eight days previous to their expansion. When done at this period its influence will extend also to the fruit. The other period of execution is when the fruit is fully formed, which is about the end of June or beginning of July in this latitude.

Various modifications have taken precedence in the manner of its performance, which has become reduced to a course readily understood and performed. Take the scissors or knife before referred to and pass it round a branch where the bark is smooth and cut down to the wood; and at a quarter to a half inch below, in proportion to the strength of the vine, make another circular incision parallel with the first, then by a perpendicular cut from the one to the other, you may readily remove the ring of bark thus loosened from the branch, which should be done quite down to the wood, so as not to leave any portion even of the liber or inner bark, to form a connection of the parts thus separated.

In seasons when the growth of the vine is very vigorous, the incision will sometimes become closed, in which case it must be re-opened; but the partial incrustation which serves for an after connection must be allowed to remain, if the shoots are intended to be layered as provins, or if it is desired to preserve them for any other object. Care should be taken not to cut into or wound the wood, but simply to take off the entire bark that surrounds it.

The following rules are adopted in France in its performance:—In girdling vineyards of low pruned vines, the incision is made on the wood formed the previous year, and below each fruit bearing shoot. In vineyards high trained, the incision is made at the commencement of the curve, or bend just below the twist previously spoken of, or in case that has been

omitted, just at the place where that is generally made, the object of both being to accomplish the same end in a greater or less degree. On strong stool vines, where the shoots are very vigorous, the incision is made on the fruit branch itself.

The fact of incision forming an infallible preventive to the blight, if executed skilfully and opportunely, is established on the basis of numerous and repeated experiments, made on vines subject to its effects.

Viewing the operation however in application to entire plantations of vines, it can only be pursued by causing the more speedy exhaustion of the stocks they contain, and at the sacrifice of the greater duration of the vineyards. The very basis of this procedure proves conclusively the exhaustion which must necessarily be produced in the lower section of the shoot, thus treated, as well as in the main stock, by the non-return of the sap; and the consequent inappropriateness of its adoption except where the branches operated upon, can be totally dispensed with at the autumnal pruning, or be layered as permanent provins, which latter course secures the great concentration of sap in the upper part of the shoot, for after advantage and profitable development. But in garden culture where the fruit of each season is produced on branches brought forward the preceding one, and where those that have produced fruit are removed at the end of the same year, this course is less objectionable, and its advantages may render it worthy of adoption. In such case the highest fruit branches and those which present the greatest show of clusters should be selected for the operation; and particular care be taken that the incision is made above the shoots intended for forming new wood. One of the most beneficial results of girdling, is that, by hastening the maturity, it allows of open culture in climates where a successful result in this respect could not otherwise be attained.

Manuring.

The vine possesses the faculty of seeking by its roots for a great distance the sustenance it requires from the soil, and can therefore subsist in the same spot an indeterminate number of

years if the ground is fertile; but every consideration recommends us to plant it in poor soils, and these soon become exhausted by it. It therefore requires frequent manuring in order to support the abundance of its produce, although a powerful motive opposes the use of it, which is that it injures the quality of the wine, and even gives it a bad flavour. On hill sides, the soil of vineyards becomes exhausted, and the number as well as the size of the grapes finally diminishes, which leads necessarily to a deterioration of the quality of the wine, of which many old neglected vineyards furnish ample proofs. At all periods the friends of good wine have been opposed to animal manures, they being the only ones essentially injurious. It is to the use of the filth of the city of Paris, that is attributed in part the bad quality of the wines of its vicinity. A moderate portion of manure will not do much injury; but as the crops are increased in proportion to the quantity, such quantities are often used even in some of the first vineyards of France, as greatly to injure the wines.

It is therefore recommended where the quality of the wines is the main object, to manure but moderately, and to select vegetable manures in all cases in preference to those produced by animals where such can be obtained. The deposits on the shores of rivers and creeks, the cleanings of ditches and ponds, and earth from roads and yards are recommended as proper for manuring and enriching the soil of vineyards. Fresh earth may also be transported from grain fields and meadows, or from woods. A suitable compost may likewise be formed with the earth of the vineyard, the leaves of trees, dry weeds, the parings of lawns, &c.

But the course least practised, and yet deemed most beneficial, is that of raising crops of particular plants every second or third year, for the purpose of ploughing or digging in. There are many annual plants that may be sown immediately after the vintage, which could in most parts of the union, attain a growth sufficient to be dug or ploughed in the same season. Buckwheat is particularly recommended for this purpose, being easily cultivated and ploughed in, and as producing

the desired effect, but as its operation is not very durable, the practice should be renewed every second or third year.

Columella mentions that the ancients used a species of lupin for this object, and on the luxuriant hills of Damazan, in the department of Lot and Garonne, the same practice is pursued. The lupin is in flower at the period of tillage, and is then turned under, thereby forming a strong and valuable manure with but little expense. It is found particularly advantageous to light sandy soils, and I would recommend its more general use.

There are also many other annual plants which might be converted to manuring the soil by this mode. In the department of the Rhone, they manure their vineyards by sowing winter vetches in October, and turning them under ground towards the middle of May, and this practice is approved by both theory and use. Another plant very suitable to this kind of culture is the faba sativa, or Egyptian bean, of which we have many varieties under the title of horse bean, windsor, long pod, &c. these can be planted annually in the intervening spaces, and after gathering the first beans, the remainder with the plants can be dug under in June.

In some vineyards they collect bushes of heath, furze, and briars, and also the prunings of trees, and bury them near the roots of the vines during summer, in order to ameliorate the soil, and the effect is said to be beneficial for several years.

The celebrated Olivier de Serres says that the third and last working of vineyards which is performed after the vintage, is absolutely necessary to the progress of the vine, and to the increase of its produce. This is usually done in autumn; and if the vigneron does not wish to delay it until the leaves have fallen, he can as soon as the grapes are gathered, commence it by having women and children to go a-head of the workmen to pull off the leaves from the vines, and throw them on the ground, which are dug in by the labourers to manure the soil. This work can be delayed until after the leaves have fallen, when dry however they are far less enriching to the soil than when green; but for my own part I am averse to all defoliations of the vine except by the course of nature.

If notwithstanding the disadvantages, animal manures are to be used, still it is advisable, that they should be left to become completely decomposed by the atmosphere; for which reason they ought not to be employed until they are two or three years old, and have lost their scent. It may be well to remark, that there are some animal substances which greatly enrich the soil and do not injure the wine, such as horns, and horn shavings, hair, claws, and nails, these have also the advantage of only becoming decomposed when the atmosphere is both warm and moist, which is the time when they can impart the most benefit.

Autumn is the most favourable period for manuring vineyards, and the vigneron is then more at leisure to attend to it, the manure likewise has time during winter to become more decomposed, and consequently will impart less odour to the fruit.

Frequent manurings are deemed far more advantageous than doing it very abundantly at one time, and are calculated to produce less variation in the quality of the wine. The manure should be spread equally over the surface, so as to afford general benefit to the roots in every direction, and not be placed in large quantities near the root of the vine only, as is often practiced. It is also deemed prudent when animal manures are used, that only part of the vineyard be manured at one time. As a conclusive proof of the great influence of manures on the fruit, we may cite the vineyards of Aunis, and its neighbourhood, where sea weed alone is used for the purpose, and where the grapes not only partake of the scent, but by being subjected to chemical process are found to yield alkali.

In the vineyards on hills and declivities, which are formed by transverse hedges, walls, and ditches, the vigneron collects every year, or every second year, the earth which has washed down from one terrace to another, in order that it may be carried up again and replaced; this custom has a tendency also to enrich the soil and merits general adoption.

Plaster would doubtless be beneficial at the usual distance

from the sea coast if sprinkled on the soil, but when sprinkled on the leaves it is supposed it would be injurious, as by causing them to be enlarged to a great degree, it might retard the maturity of the fruit. The disadvantage of powerful manures plentifully applied, must be considered as more particularly affecting the grapes of very delicate flavour, which make the finer wines. They produce little or no effect on those of a coarser and more common character, and none on brandies. Being therefore a most powerful auxiliary, and one which so greatly increases the produce, it may be very liberally applied without fear of injury, except in the case first mentioned.

Ashes may be classed among the most suitable manures, and from its plentifulness and cheapness among us, may always be obtained in sufficient quantities. Its use is deemed advantageous both to mingle with the earth in filling up the holes or trenches where the vines are planted, and to incorporate with the soil in the various operations of preparing or manuring it. Its value may be justly appreciated from its similitude to volcanic remains, which are so well known as the most propitious soils for the production of superior wines.

Where the vineyard is based on a rocky foundation, moistened ashes is often strewed at the bottom of the trenches, and also mixed with the soil used in filling them up, as it serves to maintain the freshness and looseness of the ground, and to counteract the effects of reflected heat.

An easy method of forming a compost suitable for vines, is to spread layers of dung, and of sods, or good rich mould, one above another, which should remain for one or two years previous to using, during the latter part of which time, it should be twice or thrice turned over, and the parts well mixed and incorporated with each other. Lime, ashes, dead leaves, and the black soil found in forests, formed by decomposed parts of vegetation, are most valuable additions to this compost.

Horn shavings, which I have already mentioned as an excellent manure, may be obtained at the comb factories in many of our cities, and when obtainable at a reasonable rate, say at two or three cents per bushel, should be purchased for

the purpose, to mingle at least with less durable manures. Blood forms a very powerful manure, and should not be applied too close to the body of the vine, as its influence is so quickly communicated to the fruit.

Dr. J. W. Smith, of Lockport, in this state, remarks, that he has found coal dust, cinders, and scales of iron, or black oxide of iron from the blacksmith's forge, when properly mixed with fine garden mould, to be incomparably the best manure for the vine, and to surpass his most sanguine expectations; he was led to make the experiment from the well known fact, that vines thrive best in volcanic districts.

Where the plants languish or fail to flourish, the causes should be particularly examined into, and where necessary, some soil of a different nature be added; if the ground be too light and thin, some strong rich mould should be dug in around them; but if on the contrary, it is heavy, light or sandy earth should be mixed with it; this operation should take place in autumn.

In many cases where vines become sickly, and their leaves turn yellow, and put on the appearance of decay, the following method of manuring them may be beneficial by affording prompt relief: fill some casks or tubs half full of fresh cow droppings, and the remainder part with water, and after it has stood thus for two or three days, pour off the water and sprinkle it over the leaves, and around the roots of the plants. I think this much superior to summer manuring, by digging in around the roots of the vines, a course that is particularly objectionable, as it is apt to disturb the young roots at the principal period of their growth.

Watering vineyards.

Pallas states, that they generally water their vineyards in the Crimea, and it is sometimes practised in the environs of Milan, and Olivier remarks, that this course is much in practice in Persia. But its use is repelled by the best vignerons of France, &c. from the great injuries which arise from it; for where the vines are watered the juice of the grape becomes

weak and vapid, and the wine consequently inferior in body, flavour, and spirit. Water plentifully applied to the Isabella and other pulpy native grapes at the time of their changing colour, and continued to their period of maturity, is said to have the effect of dissolving the pulp.

Where vineyards are planted on a rocky bottom, and thereby subjected to injury from droughts, it were adviseable to use the augur which might open a stream of water capable of rendering great and permanent benefit to the vineyard.

Tillage or working of vineyards.

The object of tilling the ground is the development of its principles, as far as calculated to advance the particular species of vegetation in view, which necessarily combines the destruction of nauseous weeds; and the loosening and lightening of the soil, in order to render it permeable to the air and to the passage of the roots, and to admit of the evaporation of too great humidity. For these various operations a judicious discrimination should be exercised as to the period most suitable for each, and in wine countries certain general rules have been adopted, which I will detail. It has been already mentioned, that at the time of flowering no work should be performed, and access to the vineyard should not be allowed.

New plantations require particular attention to the tillage, both on account of the great necessity of increasing by every means the strength and vigour of the young vines, and to destroy the far greater profusion of weeds which then make their appearance.

Frequent ploughings are very beneficial, and in this early stage of the vineyard can be performed without danger of injury either to the branches or the roots, which the great extension of the vines in after years may prevent. Four ploughings should therefore be annually performed the first and second years, after which a less number may suffice.

In the first operations of tilling a young vineyard, a small hollow should be formed around each vine stock to catch and retain moisture for the roots, and care should be taken at all

after labours, that this hollow remain, or that it be formed anew as often as necessary.

In all the dressings I would suggest particular care not to injure or cut off any of the roots, for notwithstanding we have the high authority of Berneaud, to cut up and destroy the roots next the surface, I must entirely dissent from its propriety. In accordance with this opinion, the digging and hoeing should be performed lightly immediately around the vine, and deeper at more distance from it in order to preserve the roots near the surface, for I have yet to learn from M. Berneaud, for what reasons they are not equally as beneficial to the vine as those that penetrate to a greater depth. My own opinion is, that their influence is more immediately felt by the vine, as they so quickly profit by the dews and light rains, as well as by being more immediately operated upon by the atmosphere, from the influences of all which the lower roots are so much farther removed.

Vineyards when well and properly worked, require four annual tilling operations; the first is ploughing, when the ground should be as deeply worked as possible; this should be performed during winter, but where the winter frosts are too severe to allow it, it must be done late in autumn, or very early in the spring; the other three are dressings with the spade or hoe, during summer to destroy the weeds. The first should be performed some days previous to the flowering, the second when the fruit has attained about one third its size, and the third when it commences changing to the colour of maturity. Some vignerons bestow but two dressings by delaying the second, and omitting the last, but the advantages gained by three dressings are more than equal to the difference of expense, for labour is equivalent to manure, and in some places where even four summer dressings are given, they find advantage from it. High trained vineyards from the manner of their arrangement admit fully of the above mode of treatment; but in most of the low trained vineyards, there is only opportunity for once tilling during the summer season, for when the branches have spread around, there is danger of bruising or

breaking them and of injuring the fruit: two ploughings would in such case be advantageous, one in the fall and the other early in the spring before vegetation commences, and the digging should take place at as late a period as will answer, say the middle or latter part of August. I would recommend however that in adopting any species of arrangement and culture for a vineyard, such course be pursued as will allow of several summer dressings without difficulty, as I think their advantages too great to be passed over for the attainment of any other object.

Deep tillage is particularly required in loam and clay soils, in order to render them mellow and permeable. Vines attain sooner to perfection in light soils than in stiff ones, but their duration is longer in the latter.

In vineyards on hills and declivities, it is proper in working them to throw up the earth as much as possible, instead of digging it down as is often done. It is true, the labourer has a more difficult task, but by this course the upper part of a vineyard will not be stripped of its soil. Some proprietors in order to carry the advantage as far as possible, considering both circumstances, have the ground worked diagonally, a course which must be approved of. When the first working or digging of a vineyard is done from east to west, the next should be from west to east, or according to this rule in whatever direction it may be. The two or three latter cleanings of the vineyard are called weedings, and are in general done with the hoe, to destroy the weeds which have accumulated, and which would extract the richness of the soil, injure the ripening of the fruit, and favour the influence of frosts. It is asserted by many writers, that summer culture of light soils causes the evaporation of moisture, and renders the soil more dry. In my experience, I have found the result directly the reverse. By digging a dry soil in a drought, the quantity of moisture seems to be increased, for the fertility is greater, and the plants flourish more than when it is omitted.

In many vineyards, especially those of Orleans, the earth is made more elevated in the line containing the vines than in

the intervals, this practice is beneficial in humid soils; but near Paris, the course is directly the reverse; for the vines are planted in trenches which do not get filled up for many years. There is in the vicinity of Paris, a mode of working vineyards which merits notice. Immediately after the poles are taken down, which is in November, they take off the surface of the soil with the pick axe, to the depth of two or three inches, and form this earth into small heaps in the intervals between the vines. After the pruning is completed, which is early in the spring, they give a deep digging to the vines, in which operation the heaps referred to are scattered again.

Implements of labour.

The labour bestowed on the vine varies in many respects in almost every vineyard. In many of the southern departments of France, they use the plough; in the north, the hoe and pick-axe of various forms, and sometimes even the spade and pitch-fork. The plough is particularly recommended for economy, and next to it no instrument expedites the work as well as the mattock used in the neighbourhood of Paris, of which the iron plate is a foot in length, and six inches in breadth, and the handle bent and very short; but it always forces the labourer to stoop very much while working, and fatigues him extremely. In our extensive stores of agricultural implements, are to be found various articles applicable to the vine culture, among which one called the "Cultivator" seems well calculated for the purpose, others are so constructed as to perform the work of many hoes at the same time, and at a comparatively great saving of labour. I merely touch on this subject to awaken the minds of vignerons to a proper selection, and to the consideration whether we may not select more suitable and economical implements for the purpose than such as are usually recommended or now in use.

French writers state, that of the three principal sorts of hoes, that which has a square iron answers best for compact soils, where there are few stones; the triangular one for those of the same character that are stony, and that with two or

three forks for light soils that are stony or pebbly: the hoeing should be done as deep as possible, and requires strong labourers, being the severest part of the tillage. The small spade with the iron rounded, is also considered among the most expeditious and least fatiguing and is much commended. In conveying new earth or manure to the different parts of a vineyard, the wheel-barrow seems best adapted where there is not space sufficient to allow the passage of a cart; and where the plantations are on the sides of hills, they use in France, a kind of scuttle-shaped basket which is found convenient for the purpose. Even where a cart can pass through the vineyard, it is apt by its weight, and the trampling of the horses, to press the ground too much, it is therefore deemed preferable to use it only to transport the manure to the outer side of the vineyard, whence it can be removed by wheel-barrows.

Of the advances and disbursements to be made by the proprietor.

The wisest course that can be pursued by the proprietor of a vineyard, is to superintend it himself with the utmost care, and not to be parsimonious in disbursements for the annual advances. The earth returns with usurious interest the treasures that are confided to it. We shall hereafter detail some of the disadvantages attendant on the management of this species of property. The formation of vineyards requires nothing more than the purchase of beasts, of implements of husbandry, of vines, &c. which being primitive expenditures like those attendant on grain farms, &c. it will be only requisite to make an accurate estimate; first, of the annual expenditures required for culture; and secondly, of the returns that should be derived from that culture, which points are seldom sufficiently understood. The former comprises, first, the price to be paid the vigneron for the different labours which he is bound to bestow on each acre of vines, in case the proprietor employs another to oversee and conduct his vineyard; secondly, the poles where they are necessary; third, the manure when required; fourth, the casks commonly used; fifth, the expenses of the vintage and making the wine at the press.

The proprietor has a right also to an indemnity, in order to make amends for occasional losses by any extraordinary calamities, such as hail, insects, &c. because these injuries form no part of what is deemed a common crisis. To cover this indemnity will not require much less than the tenth part of the total medium product.

Pay of the Vigneron.

There are some districts in France, where it is customary to give the vigneron for compensation, the third, half, or two thirds of the crop, to pay all the expenses and labour; and where consequently the owner receives a revenue more or less according to the produce. But this course seems to be deprecated by intelligent French writers, who say that the result of this mode of arrangement is as injurious to the interest of the proprietor, as to the vigneron and even to the vineyard itself. For in such cases the vines are often badly cultivated; that is to say, the vignerons bestow on them the least possible labour, pay no attention to repairing injuries and expend no money, insomuch that but inferior crops can be realized from them. Cases are even witnessed where the vignerons, contrary to the desire of the proprietors, destroy good vines which yielded moderate crops, in order to substitute what are called *grosses races*, or great bearers, which yield a more abundant produce, but make bad wine, thus evincing no concern whether the reputation of the vineyard is injured or not.

In other instances the vignerons when in debt, diminish the value of the wine by agreeing to sell it at any price, and thereby sacrifice the interest of the proprietor. It is consequently far preferable, as has been recommended in another place, that a vineyard should be under the immediate direction of the proprietor; or if it is not, that he should pay a vigneron a regular compensation, and himself make the advances necessary for its management. Doubtless, however, in most cases, in the formation and management of vineyards in our own country, the proprietor and the vigneron will be united in the same person, which will ensure a proper attention to the various

duties required, and will also cause a saving of the expense of one family, which in France is generally intermediate between the owner of the vineyard and those who labour in it.

Winter protection of vines.

The considerations attending protection against the rigors of winter will be necessarily much varied according to the varieties under culture. Our native varieties so far as they have been tested, need no provisional care on this point; nevertheless some attention to it may be required hereafter by a part of the vines latterly introduced from our extreme southern limits, and from the province of Texas. At present however, we have only to consider the relative hardihood of foreign varieties, as they alone necessarily claim our attention at this time. Many of these will support our severest winters, others need particular care, or they perish partially or totally. But this necessity for protection varies according to the section of the union in which the vines are located. Too much discrimination cannot be exercised in selecting judiciously the kinds to compose the vineyard, a subject which has been already discussed; and after all my own experiments I have come to this conclusion, that to establish vineyards of the most profitable description, with a certainty of regular crops in localities north of the highlands in this state, *native varieties alone should be selected;* and the whole of the eastern states will of course be comprised in this remark; for although vineyards of foreign vines may prosper, the annual product and consequent profit, and above all the certainty and regularity of crops would be much less.

Foreign vines from Germany, and from the northern and middle departments of France, support the winters of this latitude after attaining two year's growth, and so do many of the varieties from more southern climes, after attaining four and five year's growth, while many of the latter, particularly those from the Mediterranean, perish almost totally by its effects. But even the most hardy kinds, it is necessary or preferable

should be protected the first winter, and those rather less hardy the second winter also, for a vine of a year old will frequently perish by cold, when one of the same variety of three year's growth will remain uninjured. A vineyard in a northern exposure where the frosts are very severe in their effects, will of course want more effectual protection than one facing the south. Different means are used to guard vines against the cold: in Denmark the vines are tied up with evergreens during winter, which may be an eligible course where the stocks are too large and strong to be bent down. The use of horse and other manure, straw and litter of horses, or cattle, is objectionable, as they are apt to become heated during warm rains or moist weather, and thereby create serious injuries. The more dry and cool the vines are kept, the better; for which reasons the covering of the vines should not be performed until the warm weather has subsided, and should be removed as soon as the danger of severe frosts is past. For the purpose of covering I prefer common sand, as it keeps the vines sufficiently cool and dry, at the same time that it subserves the other objects required. The following directions I have found suited to this latitude, and they can be modified to suit any other:— In the course of the month of November, bend each vine gently down, and if long, form it into a coil, and stake it to keep it in its place; after this, proceed to cover it, hilling the sand or earth up from four to six inches, and sloping it to cast off the rain. In the last week of March, the vines must be carefully uncovered, and trained along the lattices, or tied to the poles or other supports designed for them. These directions for covering vines during the winter, are only necessary for the climate north of the Potowmac; for in the more southern states, no protection of course is necessary.

Garden Culture.

The principal differences which distinguish the garden culture from that of vineyards, is the greater labour and attention bestowed on the former, attended with a degree of expense which the latter would not admit of, as from its far

greater magnitude and extent, a degree of economy is rendered indispensably necessary in the details. Another is, that by means of garden culture the vine is made to yield fruit for the table much farther north; grapes being thereby produced in great perfection in the gardens and hothouses of Stockholm and St. Petersburgh.

On this and on every other species of culture there exists a contrariety of opinion. I shall therefore give the modes generally adopted as the most advantageous. It seems to be the general opinion that trellises for training vines against the sides of walls should be placed about nine inches to a foot from the wall, also that the walls should be painted black or tarred, and the results of some experiments are hereafter given. I will further remark that to such perfection has the culture of the vine attained in the most disadvantageous climates, that I doubt not we shall ere long have the fig, pomegranate and other southern fruits subjected to a culture based on similar principles and attended with equal success. The authors of the Bon Jardinier, published at Paris, give as the climax of the art of cultivating the vine on trellises or walls the course practiced at Thomery, a village near Fontainbleau, which supplies the markets of the metropolis with the most delicious fruit principally of the White Chasselas variety.

This mode of culture now approbated in England, was like many other improvements not adopted there until a considerable period after it was appreciated and pursued in this country, and the very figures given in their publications in regard to the mode of training, &c. were anticipated by those of Mr. Dean, deposited at the office of the N. E. Farmer; and the Hon. John Lowell very justly remarks, that to us "it is some satisfaction to perceive that the English cultivators appreciate it as highly as we did."

With the original work now before me, I deem it altogether unnecessary to make a new version, when so perfect a translation exists, as that made by Mr. Lowell, and I consequently insert that here, accompanied by some remarks from his pen; and I feel gratified at this and every other opportunity of paying

a passing tribute to one, alike to be reverenced and esteemed for his great intelligence on the subject of horticultural science, for his general urbanity of manners, and for the distinguished liberality which has marked his course.

The practice of shortening the fruit branches is often adopted in garden culture in cold localities, and sometimes even in vineyards, as stated at page 280, its object being to cause a greater accumulation of the sap in that part of the shoot *which* supports the fruit, and to prevent its exhaustion by a great and sometimes unnecessary extension of those shoots; and if these branches are to be pruned out in autumn, and their places supplied by new ones the ensuing season, their great extension is of no use whatever, and it is in such case much the preferable course to husband the sap in the manner before named. This operation is executed in cold and unfavourable localities as soon as the berries are fully formed, and in others when they have attained two thirds or nearly their full size. The period should be selected according to the circumstances of the occasion, which should also have their influence in deciding upon the number of buds or joints to be left beyond the last cluster of fruit, the number of these to be allowed being proportionably greater according to the warmth of the climate, the duration of the summer, &c.

Culture of the Vine at Thomery.

The walls against which they train their vines are about eight feet high, (Berneaud says seven) and are covered with a coping or cornice which projects about nine inches. This protects the vine against frosts and against the violence of rain, without shading it too much, and it also prevents the upper shoot from pushing too vigorously. These walls are furnished with trellises, the upright standards of which are two feet apart, the sloat, or horizontal pieces or rails, nine inches apart, and the lower one six inches distant from the ground.

The grape border along this wall is dug and manured to the width of five feet at least, and to the depth of fifteen or

eighteen inches. If the soil is wet, they slope the border so as to throw off the water from the wall. When the border is prepared, they open a trench at four feet distance from the wall and parallel to it, and nine inches deep, and having ready prepared a quantity of layers or cuttings sufficient for the purpose, they lay them across the trench at the bottom with their tops towards the wall, and at a distance of twenty inches from each other, they then cover them with four or five inches of soil, and tread them down, at the same time raising the upper end which was placed towards the wall nearly to a perpendicular, the trenches are then filled two thirds full, and the residue of the soil spread over the border; they next put into the trench three inches of manure, which keeps the plants fresh and moist, and prevents the ground from becoming dry and hard. In March, they shorten or cut in the plants to two eyes, they weed and dress the ground, and water the border the first season, if the heat of the weather renders it necessary. Scions and young plants of the vine require a moderate degree of moisture to aid them in forming their roots. The young shoots are tied to props, and every thing done that is necessary to favour their growth. The following season, if any of the vines have several branches, the most luxuriant is left, and all the others carefully pruned off. The vine is again buried in autumn, in the same manner as before detailed, and in this manner the culture is continued until the shoot retained reaches the wall. Every time however when a new shoot is thus laid down, it is pruned down to the strong and perfect wood, well furnished with buds. It generally requires three years before the vine reaches the wall, but in the meantime, it produces annually some fine clusters of fruit.

We now come to the formation of the bearing branches [*cordons.*] If the wall is eight feet high, you should make five such branches on each side; the first six inches from the ground, and the four others eighteen inches apart upon the horizontal rails of the trellis or espalier, arranged previously so as to effect this object. The stalk destined for the lowest bearing branch should be cut off just at the height of the shoot,

if it has at that place a double eye or two eyes. If it has not, you must cut it above the eye which is next above the lowest rail of the trellis. These two eyes are destined to furnish the two lowest branches (to right and left) on the lowest rail of the trellis. The one that is too high must be bent down gently, and that which is too low, trained up and fastened to the trellis, so that both shall be in the some horizontal line. The second bearing branch [*cordon*] being at two feet from the ground, cannot be formed as soon as the first, the third will be still later, and so on. Whatever be the height to which you propose to carry your stalk or stem, you ought not to advance it more than twelve or fifteen inches each year, and should preserve its lateral buds to increase its growth and furnish fruit. But as soon as the stem has reached the requisite height, it is absolutely necessary to suppress and cut off all lateral buds on the main stem throughout. Let us now suppose all the stems arrived at the requisite or proposed height, and that their two last or upper branches are extended to the right and left to form the two arms of the bearing branches: we will now show how these two arms or branches are to be cut till they have gained the length of four feet each. The first year you will cut so as to have three good eyes from four to six inches apart. Two of these eyes will be cut so as to form bearing wood, and the third will be employed to lengthen the branch. Care must be taken to train vertically the shoots destined to bear the fruit. At the second cutting the bearing shoots thus trained vertically must be cut, leaving two eyes or buds; and the terminal branch in like manner must be so trimmed as that there will be three eyes, two of which will be reserved for bearers, and the third to prolong the shoot as in the former year, and so proceed till each lateral branch shall have attained the length of four feet. Each branch ought then to have eight bearing eyes or shoots, all if possible on the upper side. When all the five plants shall have reached their height and length, you will have on a surface of eight feet square, (or sixty-four square feet,) eighty bearing branches, which being pruned to two eyes, will each form two branches,

bearing two bunches each, making three hundred and twenty bunches on eight feet square of surface."

The eyes at the bottom of the shoots of the grape are very close together and extremely small. There are no less than six in the space of two lines, or the fifth of one inch. When you cut the bearing branch long, say one or two inches, these little eyes become extinct and do not push; but if you cut close to them, they grow and give very beautiful bunches. Able gardeners are well aware of this, they frequently cut at a distance of one line only or even less. It is for this reason that these branches never become long under their management.

Those who are ignorant of the nature of the vine, cannot conceive how a bearing branch shall have given fruit for twenty years, and not be at the end of the time an inch long. If there be more than two buds that start from the same branch, it is absolutely necessary to suppress or pinch off the surplus even if they have clusters on them. It is necessary to treat the young shoots very tenderly in training, because they easily break off when they are young. You ought not to force them into a vertical position till the berry of the grape is large; till then all you have to do is to take off all shoots which have no grapes, to break off tendrils, and to pinch off the extremities of the bearing shoots after the flowering has past, in case they grow too long. When the grape has nearly attained its size, it is beneficial to water the fruit from a rose waterpot in a manner resembling rain. This makes the skin tender and increases the size of the berries. You gradually uncover the fruit and expose it to the sun to heighten the colour and improve the flavour. If you wish to leave it out till after frost, you may cover the bunches with paper bags, which are of use also in protecting them from insects and birds.

We admire, (says the Bon. Jardinier,) as many others do, those branches of the vine, which are carried to two hundred feet in length, and we admit that there are parts of a wall, which can only be covered by branches, the roots of which are very distant, but we know, that when a branch has extended beyond a cer-

tain distance, it no longer gives fine bunches, but at its extremities; the spurs at the centre no longer produce any thing but small clusters, and soon die of inanition. This inconvenience doubtless occurred to the Thomery gardeners, and by an admirable calculation, they fixed upon the length of eight feet for each vine. It follows from this arrangement, that the sap is equally distributed to all the spurs, and that all the bunches are well nourished, and more beautiful.

We should also here remark, that, though the branches at Thomery are only eight feet long, they do not throw out extraordinary shoots, because the plants being set at twenty inches only apart from each other, their roots dispute or contend with one another for nourishment. The cover of the wall also extending over the vine nine or ten inches, contributes to check the growth, consequently the vine uninjured by any excess yields fruit with all the qualities which it is susceptible of acquiring.

"Such" says the translator, "is the strong, and to my understanding, the sound language of men, living in a country which has cultivated the grape ever since the invasion of Julius Cæsar, before the birth of our Saviour, and which raises one million of pounds of grapes, for every pound raised in England and America united. In revising the English and French authorities on the culture of the vine, the result is, that in the British works I find nothing but chaos, and as you would naturally expect from people who raise the grape as a luxury only, no two writers agree with each other as to the proper mode of training or pruning, and every new writer from Hitt to Hayward, has his own scheme. I would not intimate, that in forcing grapes the English gardeners are not eminently successful, but they are so in twenty different ways. They are so attentive, so neat, so utterly indifferent to expense, that success is hardly to be avoided. In France, on the other hand, it is an affair of subsistence; it is the great staple of their whole country, even to the north of Paris; yes, to a latitude four degrees north of Quebec.

"The Thomery gardeners have adopted the most economi-

cal, and the most simple mode of training. It is a point susceptible of mathematical demonstration, that no mode of training but the horizontal one can give so great an extent of bearing wood without interference. The horizontal mode of training has one other good effect; it checks the tendency to useless, injurious, and enormous growth."

We have every reason for supposing that these smalland almost invisible buds are really the most fruitful; for, even in the old mode of pruning, it will be observed that the lowermost good buds produce fruit first, when the vines commence bearing.

"To me," says the translator, "some of the remarks of the writer are wholly new and truly surprising. I had no idea that the small and almost invisible buds at the root of the branch were those which produced the exquisite grapes sold in Paris, under the name of Chasselas de Fontainbleau. It is true, that last year I thought I had discovered an anomaly in the grape. I found a fine shoot filled with fruit growing apparently out of the side of an old branch as big as a man's wrist. I deemed it so strange that I was upon the point of asking some friends to come and see it, but upon examining it more closely, I found that there had been a shoot there the year before, which the gardener intended to extirpate, but did not rub off at its base. It is these buds scarcely visible, that furnish the fruit. To show the productiveness of the vine in some certain cases, Mr. L. states at a different time, that he had at the extremity of one branch, ten pairs of bunches, fully ripened, growing in the space of one foot."

The following additional particulars in regard to the Thomery culture may be interesting:—Along the walls at three feet distant from each other are iron hooks soldered with lead to support the braces of the trellis. The trellis is formed by nine horizontal slats, or lattices, fastened by iron braces to the hooks above mentioned, and on these are trained the main branches of the vine. The perpendicular supports are about two feet in height, and fastened to the horizontal ones

by strong iron wire. The vine shoots are generally tied to the different parts of the trellis with old soaked rushes.

When the heat of the summer is past, and the benefit to be derived from the foliage is nearly suspended, a part of the leaves that hide the grapes from the sun are taken off, which allows the fruit to become more highly coloured. The Thomery cultivators deem an easterly exposition the most favourable, on which the sun shines until one or two o'clock.

In order to hasten the formation of new plantations against walls, many persons use at the commencement rooted vines that have been propagated in baskets, by which means a crop is obtained much sooner than by cuttings.

Another mode of culture adopted by many of our intelligent cultivators, is detailed in the Massachusetts Agricultural Repository, from which I make the following extracts. After going through the preparatory culture for the first three years in rearing young vines from cuttings, and concluding the labours of the last one, by leaving two shoots to each vine, the weaker one with two eyes and the stronger with three eyes, the writer commences the fourth year thus :—If you keep your vines properly dressed, you may have your first fruits without injury to your plants. After this the system to be pursued must depend on the strength of your vines, and this will depend on the goodness of the soil and the care you take of your plants. But as a general rule, the following points must be attended to.

" 1. The number and length of your fruit branches must always depend on the strength of your plant, the wood branches are always to be cut down to two eyes.

2. No more branches should be left on the vine than it can nourish well, and abundantly; this will depend on its age, and the soil in which it grows.

3. The branches should be cut in alternately for wood and fruit branches, observing to cut for wood branches as low down on the plant as possible, so as to renew your wood near the bottom annually. No shoots should be permitted to grow from the old wood, unless wanted for this purpose.

4. No more shoots should be permitted to grow than can be laid in clear and handsome, and without confusion on the trellis, and so as to admit the sun and air freely among the branches.

5. The laterals should be rubbed out of the wood branches six or eight eyes high, and those that are permitted to remain should be pinched in to one bud. The laterals on the fruit branches should be rubbed out from the insertion of the shoot to the uppermost fruit inclusive, and the others pinched in as above. If the shoots are very strong, the upper laterals may be allowed to grow, to take up a greater portion of the sap; but this should not be done unless there is danger of the eyes bursting in the main shoots. Be careful always to keep the shoots tied up near their top.

6. Never leave more than five good eyes on a fruit-bearing branch, unless your vine is confined to a narrow space, and you are obliged to preserve only two or three fruit branches; in this case the length of the branch must correspond to the nourishment it will receive from the plant. Select the roundest and fairest branches for fruit, and the lowest and most feeble for wood. The closer the buds are together, or the shorter the joints of the branch, the better they are for fruit; these may in general be cut to three, four, or five eyes according to their strength. But in vineries covered with glass, where two fruit-bearing branches only are left on strong vines;—twenty, thirty, and forty buds are sometimes left on fruit branches.

The foregoing rules will be sufficient for any one to form a vineyard sufficiently large to supply himself—his friends, and the market with grapes."

In cultivating vines to form bowers, cover arbours, &c. such one of the modes of training can be adopted as may best suit the purpose of the cultivator, and such varieties of vines be selected as best accord to the locality.

Painting walls black.

This course appears to be very conducive towards advancing the maturity of fruit. Mr. Daws, of Slough, near Windsor, has made the experiment of painting a wall covered by a vine, one half black, and leaving the other half in its usual state. That part of the vine which covered the black wall ripened the grapes earlier, and yielded about three times the weight of fruit that the other half produced. A writer in the N. E. Farmer also remarks, that "experience has proved that a vine of an uncommon size, which even in the hottest years would not produce any ripe fruit, has for several years (since this practice was adopted) regularly yielded the finest grapes, and that all other fruits, the trees producing which are planted against the black wall ripen much sooner than those in the neighbourhood." A correspondent recommends substituting for paint, a tar composition, on account of its smell being so offensive to insects. This is formed by an union of charcoal four-fifths, and slaked lime one-fifth, mixed with tar; and is to be applied hot.

Hothouse culture of vines.

Speechly remarks that every hothouse intended for grapes should be either built on a dry soil or where the situation will allow of its being made so. If the ground be wet or the soil inappropriate, the necessary measures should be adopted to change their character, by forming drains to carry off the water, and by either mixing other soils with the natural earth so as to give to it the requisite adaptation, or by a removal of the local earth, and replacing it with that suitable to the purpose. The first operation necessary is the formation of the bed into which the vines are to be planted immediately in front of the building. This should extend its whole length with a depth of two feet, and a breadth of six feet, and a variation of dimension in the latter respect by contraction or extension will be attended with correspondent effect on the vines and their product. Having prepared a space of the dimensions desig-

nated, and the natural soil being entirely removed therefrom, I would advise covering the bottoms with a layer of gravel one or two inches thick to drain off superabundant moisture, after which it should be filled with a mixture of such soils and manures as are best calculated to secure the object in view, full information relative to which will be found under their respective heads.

Speechly prescribes the following mixture as most proper for the purpose, and states that it is the same as was used in planting the famous vine at Welbeck. "One fourth part of garden mould (a strong loam), one fourth of the swarth or turf from a pasture where the soil is a sandy loam, one fourth of the sweepings and scrapings of pavements and hard roads, one eighth of rotten cow and stable-yard dung mixed, and one eighth of vegetable mould from reduced and decayed foliage." The swarth should be laid in a heap till the grass and roots decay and then be turned over and broken with a spade, after which it should be added to the other materials, and the whole be worked together until the several parts become perfectly well mixed and incorporated. If this compost be mixed some time previous to use, it will be the better, but if time will not permit that, they can be mixed as well as possible by working them over at the time. Many persons make use of a much more simple mixture of materials, and take only one half good garden mould and one half well rotted manure, which are either well mixed up beforehand or spread in layers whilst forming the bed, and mixed up as well as possible at the time of the operation. Were I to suggest a variation I would recommend the following: one fourth strong garden loam, one fourth light sandy loam, one fourth decomposed vegetable mould from swamps or woodlands, and one fourth well rotted manure.

After the bed has been filled up with this prepared soil, it is better it should remain some time to settle previous to planting the vines; or if the vines are planted immediately, an allowance should be made of two or three inches for the settling of the ground, and consequently of the plant itself. The

vines selected for the purpose of planting in this bed should have each one shoot of vigorous well ripened wood three and a half to four feet in length, the part above this length being pruned off. In planting the vines, the same measures are to be pursued as in other cases, always remembering that the more carefully the operation is performed, and the more appropriate the preparation of the ground, the more prompt and satisfactory will be the results. The shoots are to be conducted through small holes made or left for the purpose under each rafter, and if the extreme end of the shoot will reach the lower end of the rafter inside, it will be all that is necessary. As the eyes or buds are liable to be injured in leading them through these apertures, it is best to put a little moss around the upper part of the stem, and to wrap over this two or three folds of paper which can be tied round with bass matting, and should be removed when it has attained its position, and the end of the shoot can then be carefully fastened to the rafter.

The summer clipping or trimming and other operations at that season, are the same as prescribed in the general directions on that subject. The pruning is the operation which here requires the most notice; and Speechly remarks that the period when the leaves of the vines begin to fall is the best for its performance, which in a hothouse generally happens in December, and in relation thereto he recommends the following course:—At the first year of pruning, if the vines are of great vigour and have grown remarkably strong, one shoot may be left the whole length of the rafter if not over twenty feet, and the other pruned down to three, four, or five buds, but where the vines are only of moderate growth, the principal shoot should be only half the above length. The intent of this mode of pruning is, that the former should produce fruit, and the latter make wood for the ensuing season, and the rule is to train each of the shoots to a separate rafter. At the second pruning the branch that has borne fruit is cut down to three or four eyes, and the new formed branch is allowed the length requisite for a bearing shoot.

However, when any of the vines appear weak and have not

made shoots more than eight to ten feet long, it will be best to prune all of them down to two, three, or four eyes, in order that the vine may form stronger growths the ensuing year. The principal object to be considered in pruning is to keep each of the rafters furnished with a vigorous shoot, every other one of which is for fruit bearing, and the intervening ones to form wood for a successive crop. Young vines are only allowed to furnish one bearing shoot, but those of large size and great vigour may be made to cover a number of rafters in proportion to their strength. In general cases however, but two fruit-bearing branches are left, which in pruning are often allowed twenty, thirty, and forty buds to each. Where it is desirable to have a fruit bearing branch to each rafter, the shoots intended to form wood can be trained in the intermediate space, if that is sufficient for the purpose, or in any other direction not otherwise occupied. The houses are generally warmed by flues of the usual construction, but they may be very eligibly heated by steam without increasing the expense. General Derby, of Salem, has his house heated by hot water after the manner recommended by Loudon.

There is much less expense attendant on erecting houses for this object than is generally supposed, as they may be built upon a very cheap construction, and they will serve at the same time for the protection of pots of greenhouse plants which can occupy the ground floor. In the sequel of the work, I shall insert different plans for their construction, with the comparative expense of each, and especially of one of the cheapest description, which is much in use around Boston.

In relation to any other points necessary to be understood in this species of culture, the reader is referred to the several heads, where they are amply discussed.

The numerous grapehouses and the extent of the garden culture of the vine in the vicinity of Boston, far surpass the advances made in any other locality of the union. These not only form the means of private supply to their owners, but afford a great abundance for the public markets, and during a

visit to that place in the autumn of 1829, I heard it computed that the quantity of choice table grapes, the produce of that season in the environs of the city, would amount to one hundred thousand pounds, which, considering its northern locality, and the infancy of this mode of culture in our country, is certainly a degree of progress worthy of our admiration.

A marked intelligence and skill seemed to every where exist among the votaries of this interesting culture; and from one of those who seemed pre-eminent in the success of his course of management, I recently solicited the details of the practice he had adopted, which I now have the satisfaction of transcribing, at the same time commending to those interested in the subject, the good sense, discernment, and intelligence which distinguish the whole course of the remarks.

"The success I have had is to be ascribed to some care in the first instance, in preparing my borders. The compost is in no part less than two feet in depth. As to the ingredients of this compost, they were such as are recommended in the standard works for the vine. Since my vines came into a bearing state, the soil has been further enriched by a liberal allowance of stable manure spread and dug in during the autumn every year. In this way a vigorous growth of the vine has been secured. To ensure fruit in great abundance and also of good quality, I have given much attention all through the season to close dressing—keeping the vines clear of superfluous wood; by extirpating in the first place, the lateral shoots from the fruit-bearing branches; and secondly, by topping these last, all but the leading one, at a point a few eyes above the fruit, and the leading shoot also when it has attained such a length, that there is little danger of the bursting of such buds as are wanted for the following year. Whether the cane or the fan shape be the better form for the vine to afford the greatest quantity and best quality of fruit, I have as yet no settled opinion. My vines have all been trained in the latter form. The English gardeners, generally, I believe, prefer the cane form: those with whom I have conversed on the subject say, that by their method they get as much or more fruit

with less wood on the vines. If they are correct, I should be inclined to give the cane training the preference, especially if the fruit obtained be as large and fine; but of this I have some doubt. I intend to make a fair experiment of the two methods.

"After the vine comes into leaf in the spring, there is no longer any danger of bleeding from pruning. From this period, I have allowed myself to cut out during the growing season, any quantity of superfluous wood, the present years' shoots for example, which were expected to give fruit, but have none. Indeed at the autumnal pruning, I am accustomed to leave more shoots, and some of them of a greater length than they should be according to common rules for the coming season, which are to be left or taken away at the blossoming time, as they promise to be fruitful or not, or as may be expedient in laying in the branches at the training. By this practice my chance of a good crop is more certain of course than it would be were I to leave no more shoots at the autumn pruning than I expected to preserve the following season. I attach no little importance to frequent pruning during summer, looking over the vines once in a fortnight or oftener, and cutting out straggling shoots, if any there be. Of this I make now a particular mention, because I think I have noticed that cultivators of the vine are apt to neglect pruning wholly for weeks together, and the consequence of this neglect is, that the bearing wood reserved for the following season is not so strong as it would otherwise be; nor, as I think, can the fruit of the next year be so fine. In estimating a crop we sometimes, indeed most commonly, are contented to enumerate the bunches of fruit; paying no regard to the weight, when in fact, as we all know, a few clusters only of large berries, all well grown, are worth a great many bunches, the fruit of which is but imperfectly filled, and of which a considerable part of the berries wholly fail. Insufficient pruning is probably one cause of this partial failure of the fruit. So also we see often a luxuriant blossom on the native vine in a wild state, and no fruit attaining to perfection, or if any but a small quantity in proportion

to the promise in the early part of the season. As a protection of the vine against the ravages of insects, and injury by mildew, I have found the sulphur wash, now generally known, effectual. Nor is the use of it, as far as I can perceive attended with any injurious consequences to vegetation. The grape, with such care as I bestow, and so much I think neither burthensome nor expensive, is as sure a crop as any other of the more delicate fruits. Shelter from cold winds is important, and I would by no means venture to express so much confidence as to the certainty of the crop in our climate, without this advantage. My own garden is protected by hills on the north and east. My vines are all of the imported kinds except one of the Isabella, which I have planted as a curiosity on account of its singular productiveness."

Difficulties attendant on the vine culture—Natural causes—Errors in management—Political causes—Ability of the proprietor—Attacks of insects, &c.

First, in regard to natural causes, the vine is subject to numerous accidents, which often render it unproductive during several successive years, it being necessary nevertheless to bestow on it the same attentions as if it had yielded its crops. Added to which when there happens a season of great abundance, the price of the wine declines so much that the sale of the crop will not always reimburse the advances of previous years.

Errors of culture relate to cases where the vineyards are badly located as regards soil and exposure, where the vines are badly selected, or where the tillage, the pruning, and the training of the vines are so badly executed, that they do not yield sufficient to reimburse the expenses they occasion. It might also be added that the passion for vineyards is such that in some districts of France, there are not people enough of other professions to consume the produce, or conveniences sufficient to allow of its export, which cause the wines to be sold at a very low rate.

Political causes consist in the regulations with regard to

duties which are often of such a nature as to afford no encouragement to the owners of vineyards to increase their produce, or enlarge their extent by expensive disbursements. They also relate to maritime wars, which render great injury to the export commerce; and to restrictions of any kind, which affect in a greater or less degree the egress of the wines to the most profitable foreign markets, or their internal transportation to the different sections of the country producing them. In obviating the great expenses which would otherwise attend the latter, internal canals are of immense importance, by facilitating the transport of so burthensome an article, at a comparatively small charge on its value.

The condition of the proprietor is a subject also worthy of particular consideration. When several unpropitious seasons succeed each other, if he is poor he cannot make the advances necessary to continue the vineyard in a good condition, nor await a rise in price when it is unreasonably low, and he is therefore placed at the mercy of speculators who enrich themselves at his expense. It is therefore from all considerations more advantageous that the vines should be in possession of persons who possess the means of making liberal disbursements at any necessary period, and who have also the ability to await the offer of such prices for their wines as will yield them a profit.

Some of the difficulties above enumerated, it will be perceived, apply more fully to other countries than to our own, and particularly to those where the vine culture has been extended far beyond the home consumption of its produce; and there appears to be none but what the vignerons of our country may surmount by application and perseverance. I now come to the consideration of the one relating to insects, and other animal attacks.

There are several species of insects, worms, and birds which often cause injury to the vine. The insects and some species of worms attack the leaves, and in particular cases the fruit: they are also troubled in France by a worm which sometimes attacks the roots, more especially in the newly formed planta-

tions. Certain species of birds are very fond of the grapes when ripe, and occasionally do much injury; but I should suppose on the other hand, that many of the birds would render more benefit than the contrary, by consuming great numbers of the insects and worms. Fortunately for our country we are at present less injured by the attacks of numerous insects, &c. than are most of the wine countries of Europe, and it is therefore unnecessary here to enter into the consideration of the different species, and the separate characters of those which are yet unknown among us. I will now therefore only discuss the subject, so far as it relates to ourselves at the present period, and will dwell more fully upon it when giving the particular details of the vine-culture of the respective countries in the ensuing volume.

Mr. David Kizer, of Washington City, has communicated to Dr. Samuel L. Mitchill, in a letter, dated July 14, 1829, four specimens of an insect which he found on the grape vine. It is capable of doing injury to the fingers of those who handle it; and of producing considerable pain and inflammation. There seems to be an emission of a venomous fluid. He saw a honey-bee pierced through its body and killed by the wound. It would seem that the food of this powerful and devouring insect, says Mr. K. is the honey-bee. He has given it the name of the Pelican Bee-Catcher. As the specimens are in excellent preservation, it may be expected that further entomological researches will be made by the savans.

A Boston writer complains of the attacks of a species of insect, the males of which he states have white wings striped with brown, and the females no wings whatever; these are found stationed on the underside of the leaf, and are said in some cases to have been innumerable. They feed on the epidermis or outer coat of the leaf, and were so destructive, that many persons in that vicinity some few years since abandoned the culture of the grape in open gardens, after trying many expensive and troublesome remedies without success. This insect appears to have been particularly injurious to plantations of vines surrounded by woods and water.

Another Boston writer in reference to the insect above named, makes the following remarks. "It makes its first appearance in June, but is most abundant in August, and if allowed to increase, destroys the vegetative principle in the leaf, and the plant languishes, the fruit mildews or moulders, and the crop is lost. Alkalies and tobacco juice have been tried as remedies, but although partially effective, have not been found completely so. To remedy this evil, however, you have only to make a small light frame twelve or fourteen feet long, in the form of a soldier's tent, but with hinges of leather where the top joins, so that this tent may be shut up or opened at the bottom to any width you may require, according to the height of your trellis. This light frame, which should be made of slats of boards from one to two inches broad, may be covered with an old sail, or some cheap glazed cotton cloth which will stop the smoke, leaving cloth enough loose at each end, to close over, and prevent the smoke from escaping when the tent is spread over the trellis.

"A few tobacco stalks moistened and put on some coals in a pan, will be sufficient to smoke the vines thoroughly: and as the tent is easily moved along the trellis on some small wheels, one man may, in a few hours, extirpate this enemy of the vineyard. Vines that are already attacked by this insect to any great degree should be smoked in June, July, and twice in August, or oftener if you find the insect is not completely destroyed.

"The insects are first seen on the under part of the leaf, without wings—very active but easily destroyed if touched. They afterwards assume the winged state, when it is very difficult to get at them, as they fly off on the vines being touched. They are yellow, striped with brown across the back. The moment the smoke ascends, the winged insects quit the leaves and fall to the ground dead or alive; the young ones perish, but the older ones will revive if not destroyed in their torpid state. To effect this, you have only to cover the ground under the tent with a piece of wet cloth before you begin to smoke, to which they adhere until the tent is removed, and

they are revived by the atmospheric air; to prevent which you will roll, or twist, the cloth each time that you remove the smoke-house, or tent, and replace it again each time before you smoke, by which means they will be effectually destroyed. This simple and cheap operation will keep your vines clear of this troublesome and destructive insect, and you may, if the season be warm, insure a good harvest; if otherwise, you will be sure, if the vines be girdled, to ripen a portion of your fruit at least."

Rose bugs are also in some cases very destructive to vines. They may be attracted from a vineyard by planting a hedge of rose bushes at the same time the plantation of vines is formed; their preference for which plant will serve to draw them off from attacks on the vines, and when they have accumulated on the rose bushes, they may be destroyed without much labour, by adopting the following method: As soon as the bugs are seen to collect on the roses, take a vessel about half filled with water in one hand, and hold it under the infested flowers, and with the other hand or a stick, disturb the bugs, and they will instantly fall into the water, from which they cannot extricate themselves. In that way great quantities of them may be collected, which by throwing into hot water are in a moment destroyed; and half an hour so spent for a few mornings will entirely get rid of this evil.

Another remedy or preventive recommended by some persons to obviate the attacks of bugs, &c. is the following: Take of sulphate of soda (glauber salts) one ounce, and dissolve it in a quart of water, and then sprinkle this liquid mixture over the plants and vines. It is said to be a preventive against all destructive insects, but I have not myself tried it. It has also been suggested that a decoction of aloes, or of walnut leaves, would probably be found efficacious applications for driving insects from vines or preventing their attacks, as they have been proved very effectual when applied to other vegetable productions; it having been found that plants may be protected from such attacks by being washed with a solution of bitter aloes, and without any apparent injurious effects resulting therefrom.

Wasps are also enemies to grapes, and to prevent their injurious attacks, it is recommended in the Dom. Encyclopedia, to hang up here and there, along the outer rows, phials half filled with water, well sweetened with honey, molasses, or coarse brown sugar; the mouth of the phial should be of sufficient size for the wasps to enter easily, but not much larger; as they soon find out the molasses by the scent, and getting into it, are drowned. Another mode is to take wide earthen pans, and cover them over with honey or molasses without water, and place several of them at suitable distances the whole length of the vineyard; every wasp to leeward, that is, within reach of the scent will come to the feast, when they will soon entangle themselves in the molasses, and by attending to them you may make it a deadly feast to nearly all that come. When the wind changes to a different quarter, the pans can be placed along a different side of the vineyard.

Birds commit depredations on the grapes when they have nearly attained their maturity, and one of the best modes to keep a vineyard free from their attacks, is stated to be that of destroying their customary food in the vicinity, particularly such as ripens about the same time as the grapes, and which consists chiefly of wild cherries and poke berries.

Mr. Legaux is said to have practised the following method of driving away birds: He having noticed that they only committed depredations just before the rising and setting of the sun, employed two boys to patrole the vineyard, each with a whip in one hand and a rattle in the other, making all the time as much noise as they could for an hour and a half. This process was continued about three weeks every year.

Mildew.

Much discussion has arisen as to the point whether this substance is of an animal or vegetable nature, but be it plant or animal, certain it is, that sulphur alone or a solution of sulphur and lime will totally suppress it. The first mode adopted in using the sulphur, was to apply it in a powdered state to the bunches of fruit when they were wet, so that the mois-

ture might cause it to adhere. This was found a perfect remedy for the mildew or mould, without any ill effect whatever being produced on the grapes. The same application to the leaves of the plant, if not absolutely successful, is a very great check to the prevalence of the insects which infest the foliage; the sulphur should be shaken over the leaves while they are in a moist state, and if not fatal to the insects the first time, this ought to be repeated. The effect seems to be to render the leaf less palatable to them, the expense is trifling, and the labour small in comparison with the value of the fruit.

The introduction of the use of sulphur may be considered as forming a new era among us in the culture of foreign grapes; but of all the means that have been tested for the suppression of the mildew, the following has proved the most successful, and in fact renders us completely master of its effects in so much that it can never hereafter be deemed a preventive to successful culture.

Take a pint and a half of sulphur, and a lump of the best unslaked lime of the size of the fist, put these in a vessel of about seven gallons measurement, let the sulphur be thrown in first, and the lime over it, next pour in a pail of boiling water, stir it well, and let it stand half an hour; then fill the vessel with cold water, and after stirring well again, allow the whole to settle. After it has become settled, dip out the clear liquid into a barrel, and fill the barrel with cold water, and it is then fit for use. You next proceed with a syringe holding about a pint and a half, and throw the liquid with it on the vines in every direction, so as to completely cover foliage, fruit, and wood; this should be particularly done when the fruit is just forming, and about one third the size of a pea, and may be continued twice or thrice a week for two or three weeks; the period for the whole process for one or two hundred grape vines need not exceed half an hour.

So all powerful is the influence of this application, that even at Newport, R. I. where it is well known the atmosphere is exceedingly moist and often surcharged with fogs, the most eminent success has attended its use; whereas those who

omitted it there have wholly failed in obtaining crops on account of the superabundance of mildew, which even extended its influence to the vines of the Isabella and other native grapes. As a proof of this great success, I may instance the vines in the garden of Capt. Jacob Smith, of that place, which principally consist of the White Muscadine, or Chasselas variety.

Aside, however, from the complete power thus obtained over the mildew, the application of this liquid preparation is also very beneficial in preventing the depredations of insects, as remarked by an intelligent cultivator at page 316.

The following remarks, on a subject similar, are from the pen of the Hon. Richard Peters, formerly president of the Philadelphia Society for promoting Agriculture.

"On garden plants I have long and freely used flour of sulphur (and on some vines particularly) to destroy and expel grubs and flies. I have perceived them to thrive, but attributed their vigour to being freed from annoyance. I have also used sulphur water on fruit trees to banish or destroy aphides. On most plants I use plaster, and therefore have supposed the gypsum alone had benefitted them.—A small infusion of sulphuric acid, in a large proportion of water, promotes vegetation and banishes insects from garden plants. It would be well to make some experiments on a variety of plants with the sulphur alone, on those of the trefoil tribe especially. I do not see why sulphur in substance should not produce effects similar to those of its derivative, sulphuric acid. But plaster is with us cheaper, and in greater plenty."

Assurances have been advanced from every quarter of the powerful influence of sulphur against the whole tribes of insects and worms which infest and prey on vegetable productions; it has also been found to be conducive to the health of the plants to which it has been applied, and it has been asserted, that peach trees in particular were remarkably improved by it, and seemed to absorb it. The common mode of applying it to plants, is to tie up a portion of the flour of sulphur in a piece of muslin or fine linen, and then to dust it

over the plants; or it may be thrown on them by means of a swan's down puff, or with a common dredging box.

Bleeding of the vine.

The great flow of the sap, usually denominated the bleeding of the vine, most persons contend is highly injurious, while others have advocated that the use of preventives is an injury. Leaving this point to the good sense of our cultivators, my own opinion is simply this, that where it is deemed beneficial to accumulate and husband the sap, it must be equally so to take means for its preservation. In the consideration of this subject it is requisite to keep always in view, that the vine only bleeds before the growth commences, when the sap has no other means of exhaustion; and that it ceases on the expansion of the foliage. One method used to prevent the bleeding is to take a piece of moistened bladder and fold it over the end of the shoot, and bind it round tightly with packthread. The remedy deemed most effectual however, is the following: Immediately after the branch is pruned in the spring, or in any case where bleeding has commenced, apply to the wound pulverized plaster of Paris, which the moisture there generated will aid in completely obstructing the flow of the fluid. It has been suggested to use for this purpose plaster prepared for cement by calcination, which probably much increases its absorbent quality, as well as the property of hardening speedily, or of setting, as it is technically termed.

Coulure, or blight of the blossoms.

The flowering of the vine is exceedingly important, as on it wholly depends the crop, and at this period the vines should not be disturbed by working among them. The shedding or abortiveness of the blossoms is called by the French *coulure*, and they have given particular directions and cautions to be observed at the flowering season in order to prevent it. Some varieties of vines are much more subject to it than others, either from nature, or from being planted in too dry or too moist a soil, or from flowering too early or too late. It is

remarked by the French, that the Corinth grape may perhaps be naturally more inclined to be abortive, on account of its having no seeds; but I have found that variety to be particularly fruitful. The most skilful vignerons cannot always counteract this blight, it is nevertheless sometimes caused by pruning too much; by working the vineyard at an improper period; or by manuring too abundantly. There is but one vineyard known in France where they pinch off the ends of the bunches before flowering, in order to prevent the coulure and increase the size of the berries, and it may be reasonably questioned whether these means produce the result. A proper attention and an appropriate discretion in the pursuance of the various rules and directions laid down in this work, will be calculated to obviate this, as well as the other difficulties particularly incidental to the vine culture. The foreign vines are in this locality so late in expanding their foliage and flowers, that I apprehend no difficulty in any case on that head; and indeed their bloom is produced at a later period than that of most of our native varieties, of which the Scuppernong is one of the most tardy, both in the development of its foliage and of its flowers.

The vintage.

The vintage is a season of mirth in all wine countries, and appears to have been equally so in the earliest ages. Isaiah's prediction concerning Moab is particularly characteristic on this point. "And gladness is taken away, and joy out of the plentiful field, and in the vineyards there shall be no singing, neither shall there be any shouting; the treaders shall tread out no wine in their presses; I have made their vintage shouting to cease."

In some parts of France the vintage of the white grapes does not commence until that of the black ones is nearly or quite over. The former are left to hang as long as possible before gathering, because thereby the wine obtained from them is stronger and of better flavour. It even sometimes happens that snow is on the ground before they are gathered. This

difference in the period of the vintage of the white and the black grapes arises from a delay in the maturity of the former, which circumstance may doubtless be correctly accounted for by the greater operation of the sun upon dark coloured fruits, than on those of a paler hue. The vines are often entirely divested of foliage before the crops are gathered, and at such time present a beautiful appearance; and it is a fact that the vintage is not generally performed in France, until after there has been considerable frost, which is not deemed an injury to the grapes when their maturity is previously far advanced.

The effects of frost are well known in regard to various products of vegetation. It not only converts mucilage into starch, but the latter into saccharine matter, instance the freezing of potatoes, which gives them a sweetish taste, probably by converting the starch which they contain into sugar. There are several of our indigenous fruits which are altogether unpalatable until the operation of frost has divested them of their acid or astringent properties, and imparted to them a degree of sweetness and mildness of flavour—among which is the frost grape, so called from this circumstance, the persimmon, and some others.

In regard to the particular manner of gathering the crops as practised in the European and other foreign vineyards, the subject will be discussed hereafter under the heads of the respective countries.

Reputation of vineyards.

It is a well known fact, that among the vineyards which have at different periods acquired great renown, there are some which have only existed for a time, and others whose reputation has been but of ephemeral endurance, because a single circumstance may suffice to destroy it, or obliterate its remembrance. A change of the proprietor or ownership is generally followed by a new method of culture. The circumstance of the cultivation being less carefully attended to; any neglect in the management or renewal of the vines most appropriate to the situation and climate; a less degree of care or any

omission of attention in the fabrication of the vines, is often sufficient to cast discredit, perhaps for ever, on the produce of a vineyard. Examples also frequently present themselves, more especially in the vicinity of the large cities of France, where the consumption is immense and the sales consequently certain; in which the proprietor of a vineyard sacrifices the consideration of quality to that of quantity in his wines, from which cause it consequently results that his vineyard does not thereafter enjoy that fame which it had acquired under a totally different manner of directing it.

In the period when Italy was in the greatest prosperity, her vineyards were planted with those kinds of vines that had acquired the highest celebrity, which were brought from the most famous parts of the earth, and thence she acquired the reputation of producing the finest wines. It is not therefore the eagerness for gain or the negligence of the cultivators to which is to be attributed the present oblivion in regard to the Italian wines of Massica, of Cecuba, and of Falerna, so highly extolled by Horace and his contemporaries. The Romans also held in great estimation the vineyards of Scio, of Coz, and other renowned places, whose produce gave delight to their banquets; and in fact, the wines of Greece, the Malvoisie, and Candia, were not unknown to them. Some of the wines then so famed, still retain a partial celebrity, but by far the most of them are no longer known. Nevertheless, France produces wines which have lost no portion of their celebrity during a succession of fifteen centuries; and how many others exist that are but little known to us, whose merits it is only necessary should be fully understood in order to compete perhaps advantageously with those of the first rank. It is with the reputation of wines as with that of men, to spring from the obscurity where they had remained unnoticed. It is not always sufficient of itself to possess real merit, but often requires the addition of some favourable event or adventitious circumstance not at all times to be met with. Who, in fact, in travelling through the fine wine countries, has not drank in some obscure district, wines of such delicious flavour that their

bare appearance on the tables of the affluent would serve to acquire them renown?

The nobility who attended Louis XIV. to his coronation, restored to the wines of Sillery, Hautvillers, Versenai, and other vineyards in the neighbourhood of Rheims the celebrity they had formerly possessed, and which they have since enjoyed. The wines of Romanée, and those of Bourdeaux, owe their fame in part to skilful management, but more particularly to certain fortunate and coincident circumstances, too well known to be repeated.

Duration of vineyards.

The vineyards in which they replant the vines every twenty or thirty years, do not yield wines of fine quality or of long preservation, and more generally the vines are left to the age of fifty to a hundred years. It is seldom, except in Burgundy, that vines are met with which have been planted for three, four, and five centuries. The wood of young vines is more porous than that which has become hardened by age, and the sap which it circulates is more watery; such vines produce more grapes, but these yield a wine less generous and less susceptible of preservation, and it is often not until twelve or fifteen years have expired that a vineyard is considered as having attained to perfection in regard to the quality of its wine. Those vineyards that are renewed continually with provins or layers, which are separated from the main vines when two years old, are considered in the class of young vineyards.

Uses of sweet grapes.

Sweet and luscious grapes yield in general but inferior wines, from the same causes that apples of a similar character afford cider of the least excellence. But they are useful nevertheless for a variety of purposes. Very sweet, luscious, and high flavoured varieties are suitable for what is termed essence grapes, in order to be mixed with others less sweet and high flavoured in making wine, as they substitute the saccharine quality, and impart an artificial flavour, which

easily approximates, being so nearly allied by natural affinity. The next purpose for which they are highly estimated is that of a delicious and salutary table fruit, eaten in a fresh state as plucked from the vines; after which follows their preservation in a fresh state for the same purpose.

The art of preserving grapes was well known to the Romans, and Columella gives a particular account of the manner in which they were preserved, both in his time and in that of his uncle Marcus Columella. He recommends that they be put in small jars capable only of containing one bunch, and states that the fruit should be gathered quite dry at a time when the sun is on it, and that after being cooled in the shade, the bunches should be suspended in the jars, and the vacant space filled up with oat chaff, all the dust having been previously blown from it. The jars should be well baked or burned, and not such as imbibe moisture; the tops of the jars must be covered over, and pitched so as to keep out the air.

The preserved grapes imported into England are principally from Portugal, and are contained in large earthern jars closely cemented down. Besides those exported by Portugal to different foreign countries, large quantities are shipped from Smyrna, Trieste, &c. and sustain the voyage to this country so well that they form regular annual appendages to the fruit shops of our large cities; those which are usually imported into our country are very large oval white and purple grapes of excellent flavour, with a thick skin however, and without the musk flavour so much prized in many sorts, those possessing that character not being perhaps susceptible of preservation for so long a voyage.

For full success in this process, it appears to be deemed necessary that a selection be made of such varieties of the grape, as have thick and strong skins, and many of our native grapes being of this description, would without doubt be suitable for the purpose, and none more so of those that I have met with than the Scuppernong, whose skin is thick, and exceedingly tough and strong. The Dure-peau, White

Malaga, the black and white Hamburgh, and a great number of other excellent grapes, have likewise thick skins, and are calculated for this object.

The weight of a berry depends not only on its size, but on the thickness of its skin, and texture of the flesh, the lightest being the thin skinned and juicy sorts, as the Muscadine, Chasselas, &c. and berries that are considered large of these kinds will weigh from five to seven pennyweights, and measure about an inch and a half in girth. A bunch of good size of the same sorts, may weigh one and a quarter, to one and a half pounds, and of the very largest size two pounds, but the average of fair sized bunches is one, to one and a quarter pounds; a bunch of the Black Hamburgh of good size will weigh nearly or quite two pounds, and bunches of the very large varieties of grapes will weigh three and four to six pounds.

Another use made of sweet grapes is for the purpose of drying, and thereby forming raisins and currants. Laborde in his account of Spain, gives the following description of the mode of drying raisins:—In the province of Valencia, they make a kind of ley with the ashes of rosemary and vine branches, to which they add a quart of slaked lime; this ley is heated, and a vessel full of holes containing the grapes is put into it. When the bunches are in the state desired, they are carried to the naked rocks, where they are spread on beds of the field artemesia, and are turned every two or three days till they are dry. In the province of Grenada, particularly towards Malaga, the grapes are simply dried in the sun without any other preparation. The former have a more pleasant rind or skin, but a less mellow substance; the skins of the latter are not so sugary, but their pulp has a much greater relish; therefore the raisins of Malaga are preferred by foreigners, and are sold at a higher price. To this their natural qualities may likewise contribute, they being larger and more delicate than those of Valencia.

Having now gone through the subject matter proposed, for for the present volume, I shall conclude by transcribing the opinions of an enlightened cultivator of our own country upon

this interesting subject, and although his communication should more properly be placed with others of its class under the head of *American vineyards* in the second part of this work, I cannot refrain from inserting it here as one of general and immediate interest, and as a specimen of that skill, enterprise and intelligence which it may be expected will be developed when we come to the discussions under that head.

Copy of a letter from Edward H. Bonsall, Esq. to the author.

"Vineyard, Germantown, Pa. February 1830.

"I received your communication, in due course, and feel under obligations for the kindness which prompted it. In accordance with the invitation contained in it, I shall now proceed to give a cursory sketch of my practice and experience, so far as I understand your proposition to extend. I may premise, that I commenced planting my vineyard in the spring of 1825, with from seven to eight thousand cuttings, which I extended over three acres of ground, arranging them with a view to the vines being when grown, at distances of four by seven feet from each other. There was an average of two cuttings in a place. From the time of planting (say first of April,) for a period of six weeks, there was but about one-fourth of an inch of rain, and the sun frequently warm. The vegetating principle was put in action, the sprouts started, and deriving no nutriment from the soil, many of them were soon killed, and dropped off. I raised something beyond one thousand. The early and most important part of the next season was almost equally unfavourable, which combining with the necessity of starting with very few of some of the varieties, I was desirous of cultivating extensively, (and from which I have since been propagating, and gradually extending my stock,) greatly obstructed the completion of my establishment, so that there are yet some vacancies to be filled. I have now about three thousand five hundred in their proper places, and upwards of one thousand more to be renewed. I have such confidence in the business being both practicable and profitable, that I contemplate planting

one and a half acres more on a site well suited to the purpose, adjoining my present establishment.

"Some of my vines produced fruit in 1827, pretty freely in 1828, and last year very largely, when my vintage produced eight barrels of wine, beside my making sale of a considerable quantity of fruit in Philadelphia, &c. The ensuing season, I shall probably have more than double the quantity, as there are constantly new vines coming into bearing, and also others approaching their full capacity, which had previously made only a first or a second effort.

"As regards the varieties with which I have had most success, and to which I give the preference, I am unhesitating in ranking as the three foremost, the 'Catawba,' the York, (Pa.) 'Black Madeira,' and the 'Isabella.' These seem to possess all the requisites for our purpose, more particularly as *wine grapes*,—and some persons admire them for the table also. They all produce excellent wood, ripening the shoots almost to the extreme end, even in the most unfavourable seasons, and without any protection, pass through our coldest winters as securely as the oak of the forest. The 'Catawba' and 'Isabella' yield extra-abundant crops of fruit, and the York Black Madeira is also a very good bearer. Their fruit rarely fails to arrive at fine maturity, and is rich in saccharine matter,—the basis of wine. The 'Alexander' I am cultivating pretty largely, but my estimation of it is on the wane. It does not produce as good wood as those just mentioned, and is less certain of ripening its fruit. I have some plants of the North Carolina 'Scuppernong' coming forward; but from conversation with some of my friends, who were familiar with it at the south, I doubt its adaptation to extensive culture. They say, that as the berries commence ripening, they immediately loosen their connection with the stem, and by slight agitation, fall in great numbers, as is the case with most of our Fox grapes. I have upwards of thirty additional varieties, several of which have not produced fruit, so as to enable me from personal observation, to place an estimate on them; and such as have, I do not think worthy of be-

ing brought into competition with the three first mentioned. There are some, the 'Elsenborough,' 'Orwigsburg,' &c. the fruit of which is good, and generally ripens, but they hardly seem fitted for vineyard culture, on account of deficiency in the size of the fruit, amount of produce, &c.

"The wine Dr. Hulings alluded to was part of a cask of one hundred and thirty gallons, made by me three years since, from the 'Alexander' grape, purchased of some of my neighbours, my vines not having at that time come into bearing. It has been pronounced by connoisseurs in Philadelphia, to be very similar in its character to a good Madeira, excepting that it was rather more mild.

"My vineyard is situated between the Schuylkill and Delaware rivers—four miles from the former, and eight from the latter, at an elevation of three hundred feet above their level, having an aspect facing S. S. E., with a sub-stratum of light isinglass soil, and seems well suited to the purpose. From my experience, both on my own premises and at other places, it is my judgment that we should reject almost all the foreign varieties, especially where our object in cultivating them is to make wine.

"I shall now proceed to make some statements on the subject of planting, training, &c. and as my experience, since commencing the business, has suggested some variations from my original plan, I shall rather detail what I *would do*, than what I *have done*. I think the plan laid down by most writers for preparing the ground and planting, is much more expensive than is necessary, and that it is calculated to deter many persons from undertaking the business. To dig the ground from eighteen inches to two and a half feet deep with a spade, is in this country no trifling task, and in comparison with the common process of farming, looks truly formidable. My plan would be, to start two ploughs with strong teams, one immediately behind the other, *in the same furrow*, each of them *set deep*, and after the ploughing is completed, *harrow it thoroughly*. Then, in the direction the rows are intended to be planted, run parallel furrows across the field, at the distance of

eight feet from each other. Afterwards cross these at right angles, five feet asunder. In the opening at the intersection of these furrows, plant the cuttings or vines. Of *cuttings*, if they are short-jointed, I think from nine to twelve inches in length is sufficient, observing that the upper eye or bud is firm and good. Then place them in the ground (at the intersections as above) such a depth that the *upper eye* is even with the general surface of the surrounding earth, and draw the earth to them till it is level, pressing it lightly with the foot. If the plough has not made an opening the full depth, the cutting can be forced down with the hand. In case rooted plants are to be set out, if they are not large, the opening at the intersection will be found to be nearly or quite sufficient to receive them, when the earth can be drawn in as before. In this way a large number can be planted in a short time, and at a trifling expense.

"Contrary to the common opinion and practice, I think I have satisfactorily ascertained that *late spring planting* for *cuttings* is attended with more success than any other time. Last year I planted in nursery beds, from two to three thousand cuttings as late as from the middle of April to the middle of May, with better success than at any previous time. In this case, the slips should be kept in a cool damp place, a cellar or ice-house, where vegetation may be held in check. To ensure their freshness, sprinkle them occasionally with water. Previous to planting, cut them a proper length, and place them with their lower ends three or four inches in water, in a tub above ground, where they may soak three or four days. At this season, the temperature will be likely to be such as will spur vegetation at once into healthy and vigorous action. In the fall, or early in the spring is preferable for rooted plants. In the autumn of the first year, after the frost has killed the unripe part of the young shoots, they should be pruned down to the mature firm wood, and then with a hoe hilled over with the surrounding soil, which will completely protect them through the winter. If left without protection the first winter, many of them will perish.

"My mode of *training*, as far as I am aware of it, is entirely peculiar to myself, and as regards *fitness* and *economy*, (taking the average of a given number of years) I think is superior to any thing I have met with. I take chesnut posts, the thickness of large fence rails, seven feet in length. These I plant along the rows, at distances of ten feet from each other, and at such a depth as to leave five feet above the surface of the earth. Then taking three nails to each post, and driving them to within half an inch of their heads,—the first, two and a half feet from the ground, a second midway between that and the top, and the third near the top, I attach No. 11 iron wire, (one degree soft is best) firmly to one of the nails in the end post, pass on to the next, and stretching it straight and tight, give it one turn round a nail in the same line as the one to which it was first attached. Having in this manner extended it along the three courses, the whole length of the row, my trellis is formed. I have had a portion of my vineyard fitted up in this way for three years, and experience has confirmed the superior fitness of the plan. It is not its least recommendation, that it possesses in a degree the character of 'labour-saving machinery.' A very important and extensive *labour-making* portion of the operations in the vineyard during the summer, is the attention required by the growing shoots to keep them properly trained up. They grow and extend themselves so rapidly, that where the strips of the trellis are lath, or where poles are used to support the vines, unless very closely watched, they fall down in every direction, in a very unsightly and injurious manner. Here, the wire being small, the tendrils or claspers eagerly and firmly attach themselves to it, and thus *work for themselves*, in probably two-thirds of the instances where the attention of the vigneron would otherwise be required. There is free access afforded to the sun and air, and no hold for the wind to strain the frame, &c. &c.

"I shall not enter into a minute description of my manner of pruning, but may just say, that after the vines have attained a full capacity for production (say five years from the cutting,)

my view is to prepare them for bearing an average of fifty clusters to each, leaving several shoots of from three to five joints on a vine, for this purpose. When fresh pruned they will not be more than four feet high, at their greatest age.

"Although I have succeeded in making good wine, and hope still to succeed, as that made last autumn, two hundred and forty gallons, in four separate casks, all promises exceedingly well. I do not consider that I have any settled practice, it being yet in some sort a matter of experiment. I therefore feel that it would be premature for me to treat on this branch of the subject. The important fact, and which is ascertained beyond dispute, is that we *can make good wine in this country*, I believe, equal to the better qualities of foreign. An interest in the business has already been awakened, and is rapidly extending itself through a large portion of our country, and practical instructions on the subject, accompanied by an exhibit of its proceeds, when actively and judiciously prosecuted, seem called for by the exigencies of the present time, and will no doubt, by prompting to the more widely extended culture of the vine, prove a public benefit at the same time that it greatly promotes the personal interests of those who engage in it.

CATALOGUE

OF THE

DIFFERENT VARIETIES OF GRAPES

AT PRESENT CULTIVATED IN

THE VINEYARD OF THE AUTHOR,

ATTACHED TO THE

LINNÆAN BOTANIC GARDEN.

THE foreign grapes included in the following assortment are reared from plants imported *direct* from the most celebrated collections in France, Germany, Italy, the Crimea, Madeira, &c.; and above two hundred varieties are the identical kinds which were cultivated at the Royal Garden of the Luxembourg at Paris, an establishment formed by royal patronage for the purpose of concentrating all the most valuable fruits of France, and testing their respective merits. They will be found enumerated in the catalogue of that establishment, it having been an object of particular care to adopt and continue in my collection the same titles there approved for their correctness.

Many of these will be found to differ essentially from grapes cultivated under similar names in some parts of the United States, as in many instances the possessors of grapes of doubtful origin have attached to them the names of old established fruits, or have made their importations from persons abroad who have deceived them; and on this point I am happy to say, that the experience of a long course of years has brought me into correspondence with those who are above deception. But to place their identity beyond the possibility of doubt, *specimen vines* of every kind have been planted out for bearing, and persons desirous of seeing the fruit can view them at the season of ripening.

In order that persons establishing vineyards may make their selections judiciously, and with a proper regard to latitude and locality, I have attached to a great number of varieties the name of the particular department of France where each originated; therefore, by turning to the map, the latitude will be ascertained. The synonymes are carefully arranged, and in no case is the same fruit *knowingly* twice enumerated in this list, and where a doubt exists, it is so stated.

T denotes celebrated table grapes.
W celebrated wine grapes.
L those from the garden of the Luxembourg.

To such as are described in this work, these designations are not attached, being unnecessary.

1 July grape
2 New black cluster, *or Black Tokay?*
3 Early white muscadine
4 White sweet water
5 Black sweet water
6 Black muscadine
7 Striped Aleppo
8 Brown, *or chocolate coloured*
9 Bordeaux purple
10 Walker's large white
11 Probyn's large white
12 Esperione
13 Black Hamburgh
14 Purple do.
15 Red do.
16 White do. *or White raisin, having proved synonymous*
17 Black St. Peter's
18 White do.
19 West's St. Peter
20 Black Prince, *supposed identical with* 29
21 Black Damascus
22 White cornichon
23 Violet do. *or Olivette noire*
24 White seedless Corinth
25 Blue Corinth
26 White Malmsey
27 Red do.
28 Black Morocco, *from France, oval fruit*
29 Black Spanish, *Black Lisbon, or Portugal, or Black Prince*
30 Teinturier
31 Gros muscadet
32 Black gamet
33 Pitmaston white cluster
34 Clapier's white, T
35 Selby's white, T
36 See 113, *having proved synonymous*
37 Naebacker's muscat, (*Adlum*)
38 See 408
39 See 409
40 Syrian
41 Black Grecian, T
42 Black Cape
43 Bretagne rouge
44 Regners de Nice
45 San giorese
46 Mamolo
47 Deo data, ? *white*
48 Norton's large oval purple
49 Seedling muscadel, T
50 Le noir?
51 Lafitte?
53 Oeil de Tourd
54 Verdal
55 Napoleon, *from Elba*
56 Meyer blanc, L
57 Précoce blanc, L
58 De perigord, L
59 Carprara, L
60 Charselle, L
61 Franconie, *black*
63 Laan hatif, *white*
64 Gouais noir, or *petit gamé*

Chasselas grapes.

Which are all celebrated table fruits.

66 White or golden chasselas, or Chasselas of Fontainbleau
67 Golden do. *distinct from* 66
68 Red chasselas
69 White musk chasselas
70 Violet chasselas
71 Yellow chasselas of Thomery, *supposed syn. of* 66
72 Purple royal chasselas
73 Chasselas blanc de la magdelène, *Prov.*
74 Black chasselas, *Doubs.*
75 Mornain blanc
76 Cioutat

Frontignac, and other Muscat grapes.

The grapes of this class are celebrated for their high musk flavour, and are among the most estimable for the table, and a few are used in France for sweet wines. In consequence of these varieties being more highly valued in France, and even much more rare there than most other kinds, more deceptions and inaccuracies have existed with regard to them than any other class; and it is with great satisfaction I can state that these are of undoubted character.

77 White frontignac, *or True White Constantia*
78 Red do.
79 Black, or purple do.
80 Blue or violet do.
81 Grizzly do.
82 White muscat of Alexandria
83 Black or red muscat of Alexandria
84 Violet muscat of Alexandria
85 White Malaga
86 White muscat of Lunel
87 Muscat panaché
88 Panse musquée, *Bouches du Rhone*, L
89 White muscadel, *supposed same as* 85
90 Red Muscadel, or Malaga
91 Augibert noir, *Black muscadel, or Black raisin*
92 Muscatelle, *Lot.*

Burgundy grapes.

All of which are very celebrated for wine, and form a greater porportion in the vineyards of France than any other class of grapes—the most of them are also pleasant table grapes. The three varieties, No. 95, 98, and 100, form the vineyards which produce Champagne wine.

93 Meunier, *Bas Rhin*, L
94 Black cluster, *Bas Rhin*, L
95 White morillon, L
98 Auvernat rouge clair
100 Gray Burgundy
102 Pineau franc, *Haute Saonne*, L
104 Bourguignon noir, *Seine et Marne*, L
105 Bourguignon blanc, *Haute Marne*, L
106 White sauvignon, *Haute Pyrenées*, L

Madeira grapes.

All of which are celebrated for wine.

107 Round violet Madeira
108 Violet or blue Madeira, *or Tinta Madeira*
109 Purple do.
110 Verdilhio
111 Nigrinho
112 see 108, *having proved synonymous*
113 Herbemont's Madeira, *Warren or Warrenton*
114 Adlum's do.
115 Black do.

German and Swiss grapes.

These are principally celebrated as wine grapes; and I have information from the highest sources, that those numbered 119, 133, 134, 137, 138, 139, 144, and 145, are considered among the most valuable for vineyards, on account of their abundant and regular crops, and their resisting the severest winters uninjured. In addition to these here enumerated, a number of varieties of grapes are cultivated in Germany which are necessarily arranged under other heads in this catalogue, including the principal part of the Burgundy grapes; and I am assured by a gentleman who has a very extensive vineyard on the Rhine, that the grapes numbered 1, 7, 93, 94, 95, 98, 100, 104, and 105, support there all the rigours of the climate, and produce immense and regular crops.

116 Blue cartager
117 Blue sylvan
118 Black shearcat
119 Facun, *white, very celebrated for wine and abundant crops*, L
120 Feldlinger, *Bas Rhin*, L
121 Fendant vert
122 Copette, *productive*
123 Gentil brun, L
124 Grand khlefner, ? *syn. of* 100
125 Blanc du Rhin
126 L'Allemand le rouge
127 L'Yverdun bon vin
128 Muller reben, L
129 Olwer
130 Red Burger, *or Facon rouge*
131 Queen
133 Petit rauchling
This last is very celebrated for wine and for abundant crops.

134 Gros rauchling
135 Red cruger
136 Red Swiss
137 Riessling, *clairette de Limoux*, L
138 le grand
These two last named are very celebrated for wine and for their abundant crops.
139 Rothe hintsche, L
140 Fendant gris
141 Rough white
142 Rough black
143 Shumroy
144 White or gray Tokay
145 Blue do.
146 Black do. *Tokai d'Hongrie noir*, W
147 Flame do.
148 Tokai de Lunel, W
149 bagnol, W
150 Rousseline blanc
151 Rouge de la Dôte

Grapes received from the border of the Rhine in the most northern Department of France, but whose native localities are mostly unknown.

152 Amarot, *Landes*
153 Aspirant blanc, *seedless*
154 Blussard blanc
155 noir, *Belosar gros*
156 Le brun fourca, *Bouches du Rhone*
157 De Candolle
158 Hermann
159 Lehrmann
160 Large damask
161 Monstreux
162 Montpellier
163 Perle? *diamant*
164 Plant gentil
165 Rouge espayot, *Landes*
166 St. Antoine
167 St. Valentine
168 Terret, *Hérault*

The following grapes being less known, and the most of them being in no other collection in our country, I have placed them under distinct divisions as to colour and form; the name of the Departments of France where each originated being in italics. Those marked T are particularly celebrated for the table; the others, although cultivated for wine in France, are many of them fine table fruits also. Those marked L are from the famous royal collection of the garden of Luxembourg.

Black, purple, and red round grapes.

169 Almandis, *Gironde*, L
170 Alexandrie noir, *Doubs*, L
171 Aramon noir, *Gard.* L
172 Arrouya, *Haute Pyrenées*, L
173 Baclan, *Jura*
174 Balavri, *Po*, L
175 Balsamina, *Po*, L
176 Bordelais, *Mayenne*, L
177 Bouteillant, *Var.*
178 Camarau rouge, *Haute Pyrenées*, L
179 Canut noir, *Lot*, L
180 Chailloche, *Charente*, L
181 Claverie rouge, *Landes*, L
182 Coda di volpe, *Po*, L
183 Cornet, *Drôme*, L
184 Cortese nera, *Po*, L
185 Courbu, *Haute Pyrenées*, L
186 Croq, *Mayenne*, L
187 Dégoutant, *Charente*, L
188 Dolceto, *Po*, L
189 Doucinelle noire, *Bouches du Rhone*
190 Epicier, *Vienne*, L
191 Espar, *Herault*, L
192 Folle noire, *Charente Inferieure*, L
193 Francois noir, *Aube*, L
194 Grenache, *Gard.*
195 Grinoli, *Po*, L
196 Gros-noir, *Charente*, L
197 Grosse-serine, *Isère*, L
198 Gruselle, *Drôme*, L
199 Jacobin, *Vienne*, L
200 Lambrusquat, *Haute Pyrenées*, L
201 Lardau, *Drôme*, L
202 Lignage, *Maine et Loire*, L
203 Magdeléne noire, *Seine*, L
204 Maclon, *Isère*, L
205 Mansein noir, *Landes*, L
206 Marroquin or espagnin, T L
207 Marseillais, *Vaucluse*, L
208 Materot, *Gard.*
209 Melon, *Jura*, L
210 Mauzac noir, Lot, L
211 Mounesten, *Var.*
212 Moustardié, *Prov.*
213 Negret, *Haute-Garonne*, L
214 Nerré *Haute Marne*, L
215 autre varieté, *Haute Marne*, L
216 Panpegat, *Gard.*
217 Pascal noir, *Var.*
218 Peyran noir, T
219 Picardan gros, *Vaucluse*, L
220 noir
221 Pied de perdrix, *Haute Pyrenées*, L
222 Pineau noir, *Yonne*, L
223 *Côte d'or*, L
224 Piquepoule sorbier, *Dordogne*, L
225 noir, *Dordogne*, L
226 *Vaucluse*, L
227 *Landes*, L
228 Plant droit, *Vaucluse*, L

229 Raisin noir, *Drôme*, L
230 prune, *Gouan*, T
231 Rive d'alte, *Lot*, L
232 Rochelle noire, or *Vigéne, Seine et Marne*, L
233 Saint Jean rouge, *Herault*, L
234 Sanmoireau, *Seine et Marne*, L
235 Sirodino, *Po*, L
236 Sparce menue, *Vaucluse*, L
237 Tinto, *Ardèche*, L
238 Terré moureau noir, *Gard.* T
239 de barri noir, *Gard.* T
240 Tibouren, or *Tiboulen, Var.*
241 Touzan, *Lot et Garonne*, L
242 Tripier, *Alpes Maritimes*, L
243 Trompe-chambriére, *Bouches du Rhone*
245 Ugne noir, *Bouches du Rhone*, T
246 Verjus

Black, purple, and red oval grapes.

247 Aspirant, *Herault*, T L
248 Barbera noir, *Po*, L
249 Bourdelas, *Jura*, L
250 Boudales, *Hautes Pyrennées*, L
251 Bouteillant, *Bouches du Rhone*, L
252 Brune, *Maine et Loire*, L
253 Carignan, *Herault*, L
254 Chaliane, *Drôme*, L
255 Grand guillaume, *Bouches du Rhone*, T L
256 Merbregie, *Dordogne*, L
257 Merlé d'Espagne, *Landes*, L
258 Navarre, *Landes*, L
259 See No. 23.
260 Plant de malin, *Côte d'or*, L
261 Perlossette, *Drôme*, L
262 Pineau fleuri, *Côte d'or*, L
263 de Coulange, *Yonne*, L
264 noir, *Vienne*, L
265 Pulsare, *Haute Saone*, L
266 Raisin perlé, *Jura*, L
267 noir de pagez, *Guard.* T
268 rouge, *Drôme*, L
269 espagnol, *Landes*, L
270 Rochelle noire, *Seine et Marne*, L
271 Servent noir, *Herault*, L
272 Teinturier, *Vaucluse*, L
273 Ulliade, *Bouches du Rhone*, T
274 rouge, *Herault*, T

White, or yellow oval grapes.

275 Aramon blanc, *Herault*, L
276 Bon blanc, *Doubs*, L
277 Bourret, *Drôme*, L
278 Boutinoux, *Drôme*, L
279 Bourgelas, *Vosques*, L
280 Calitor blanc, *Gard.* T
281 Cecan, *Haute Garonne*, L
283 Chenein, *Vienne*, L
284 Clarette blanche, *Bouches du Rhone*, T
285 Columbau, *Gard.* T
286 Dure peau, *Bouches du Rhone*, T
287 Folle blanche, *Charente Inferieure*, L
288 Galet blanc, *Gard.* T
289 Gamau, *Drôme*, L
290 Gros Orleans, or white Orleans
291 Grosse perle, *Seine et Marne*, T
292 Jacobin, *Vienne*, L
293 Joannen blanc, *Bouches du Rhone*, T
294 Malvasie, *Pyrenées Orientales*
295 Olivette blanche, *Bouches du Rhone*, T
296 Panse commune, *Bouch. du Rhone*, T
297 Pique poule, *Lot et Garonne*, L
298 Piquant-paul, *Basses Alpes*, L
299 Picardan, *Herault*, T
300 Pied sain, *Mayenne*, L
301 Plant pascal, *Bouches du Rhone*, L
302 Plant de salès, *Bouches du Rhone*, L
303 Plant vert, *Yonne*, L
304 Raisin blanc de pages, *Gard.* T
305 des dames, *Bouches du Rhone*, T
306 Raisin perlé, *Jura*, L
307 Rajoulen, *Lot*, L
308 Servinien, *Yonne*, L
309 Trompe chambriére, *Bouches du Rhone*, L.
310 Verdat, *Vaucluse*, L
311 Vicane, *Charente-Inferieure*, L.

White, or yellow round grapes.

312 Aligoté, *Côte d'or*, L
313 Assadoule bouvier, *Gard.* L
314 Augibert blanc, do. T
315 Blanc doux, *Landes*, L
316 Cammarau blanc, *Haute Pyrenées*, L
317 Cascaralo blanc, *Po*, L
318 Chopine, *Aisne*, L
319 Clarette ronde, *Bouches du Rhone*, T
320 Claverie, *Haute Pyrenées*, L
321 Dammery blanc, *Yonne*, L
322 Doucet, *Lot et Garonne*, L
323 Doucinelle, *Bouches du Rhone*, T
324 Fié jaune, *Vienne*, L
325 vert, do. L
326 Forte queue, *Deux Sevres*, L
327 Fourmenté, *Aisne*, L
328 Gouais jaune, *Vienne*, L
329 petit, *Jura*, L
330 Granache blanc, *Gard.*
331 Gouais blanc, *Moselle*, L
332 Guillemot blanc, *Landes*, L.
333 Gulard, *Haute Garonne*, L

334 Heanant blanc, *Seine et Marne*, L
335 Latrut, *Landes*, L
336 Lourdaut, *Drôme*, L
337 Marmot, *Landee*, L
338 Mauzac blanc, *Lot*, L
339 Merlé blanc, *Landes*, L
340 Nebiolo, *Po*, D
341 Pique poule, *Haute Garonne*, L
342 *Lot et Garonne*, L
343 Plant de demoiselle, *B. du Rhone*
344 Plant de Languedoc, *Bouches du Rhone*, T
345 Printanier, *Haute Pyrenées*, L
346 Prunyéral, *Lot*, L
347 Raisin blanc, *Po*, L
348 Rivesalte, *Charente*
349 Rochelle blanche, *Seine et Marne*, L
350 Rougeasse, *Lot*, L
351 Saint Jaume, *Landes*, L
352 Saint rabier blanc, *Charente*, L
353 Semillon, *Lot et Garonne*, L
354 Servinien cendré, *Yonne*, L
355 Ugne blanche, *Bouches du Rhone*, T
356 Ugne de malade, *Bouches du Rhone*, T
357 Ugne lombarde, *Vaucluse*, T L

Gray, or violet oval grapes.

358 Blanquette violette, *Pyrenées Orien*, L
359 Clarette rose, *Bouches du Rhone*, T
360 Damas violet, *Herault*, T L
361 Tres dur, ou de poche, *Prov.* T
362 Martinen, *Prov.* T
363 Piquepoule gris, *Herault*, L

Gray, or violet round grapes.

364 Grec rose, *Gard.* T
365 *Vaucluse*
366 Gromier violet, *Cantal*, L
367 Marroquin gris, *Bouches du Rhone*, L
368 Marvoisin, *Loire*, L
369 Plant de la barre rouge, *Bouches du Rhone*, T
370 Raisin de gênes, T
371 Ugne de Marseille, *Bouches du Rhone*, T

The Departments which compose the districts of Burgundy, Champagne, and other celebrated wine districts of France, can be seen by reference to the map, and the names of the Departments being attached to the foregoing list of grapes, it will easily be perceived which kinds are used for the wines of those respective localities.

American native grapes.

All the following are genuine American species and varieties, except No. 394, which is a native variety of a foreign species, and No. 408 & 441, deemed dubious.

372 Alexander
373 Herbemont's Arena
374 Red Bland
375 See 374, *being synonymous*
376 Carter's favourite
377 Catawba
378 Columbia
379 Elkton
380 Elsingburgh
381 Black fox
382 Red do.
383 White do.
384 Honey
385 Isabella
386 Long's Arkansas
387 Louisiana
388 Lufborough
389 Sweet scented, *for arbours*
390 Missouri
391 Muncy, *pale red*
392 *black*
393 Norton's Virginia seedling
394 Orwigsburgh
395 Raisin de côte
396 Winter grape
397 Palmated leaved winter grape
398 White scuppernong
399 Black scuppernong
400 Solander's large purple, *seedlings*
401 Texas, *curious foliage*
402 Texas, *diverse leaved*
403 Winne
404 Worthington
405 Pell's Illinois
406 Clifton's Constantia (? *syn. of* 372)
407 York Madeira, (? *synon. of* 372)
408 Jordan's large blue (? native, Auth.)
409 Cooper's wine
410 Black round muscadine
411 Black oval do.
412 Bailie
413 Bachman's red fox
414 Beaverdam
415 Clarke's
416 Coon
417 Cunningham
418 Denniston
419 Early white
420 Early black summer
421 Gale grape

422 Garber's Albino
423 red fox
424 Green scuppernong?
425 Hyde's Eliza
426 native blue
427 Henrico, *supposed identical with* 417
428 Hill grape of the Scioto
429 Illinois prolific
430 Kellogg
431 Kenrick's
432 Large blue
433 Maryland purple
434 Millington's white
435 Missouri white
436 black autumnal
437 black winter
438 Monstrous fox
439 Nashua
440 Nazro
441 North Carolina white?
442 Owen's white
443 Pale red Virginian
444 Penniman's
445 Pond's seedling
446 Prolific chicken grape
447 Scott's grape, *seedlings*
448 Sloe
449 large
450 Smallwood
451 Swatara
452 Thompson's
453 Troy grape
454 Vitis æstivalis
455 Webb's grape
456 Weidmar's red fox
457 Willis's Fredonia
458 large black
459 Windsor
460 Woodson
461 York Lisbon
462 Claret

Foreign Varieties,

The most of which are of recent introduction. w designates white grapes, and c coloured grapes.

463 Arbois, *Maine et Loire*, w
464 Austrian muscadel, w
465 Biron, *Lot*, c
466 Black Corinth, *Zante currant*, or *Corinthe noir du Morée*
467 Black Morocco, *of the English collections*
468 Black Zinfardel, *of Hungary*
469 parsley leaved
470 Blanc madame, *Haute Pyrenées*, c
471 Chasselas précoce de Kienzheim
472 Doucinelle, *Bouches du Rhone*, w
473 Early oval
474 Elliot's large white
475 Gouais petit, *Jura*, w
476 Grande Corinthe avec pepins
477 Gré rouge? c
478 Griniolo, w
479 Gros rouge, c
480 Gutadel
481 Hansteretto
482 Lachryma Christi, or *Raisin de Vésuve*
483 Lombardy
484 Monstrous violet
485 Muscat d'Espagne
486 violet précoce
487 gris
488 Navarro, c
489 New red Muscat of Alexandria
490 Ouliven, *Bouches du Rhone*, c
491 Perkin's Constantia, c
492 Perle rose
493 Pernan, *Côte d'or*, c
494 Picardan, *Herault*, w
495 Piquepoule blanc, w
496 Poonah
498 Raisin de notre dame, *Bouches du Rhone*, w
499 Raisin perle
500 rouge, *Cantal*, c
501 Red muscadine, *may be same as* 63
502 parsley leaved
503 sauvignon?
504 Salviner, w
505 Sauvignon blanc, *Jura*, different from 106, w
506 Savagnien blanc, or *Meunier blanc*, w
507 Spence's seedling
508 Sultana, *nearly seedless*, w
509 Terre promise
510 Terré bourré, c
511 Verjus, w
512 Violet Calabrian? supposed synonymous with some other
513 Oval white Constantia? do. do.

EXPLANATION

OF ADDITIONAL SYNONYMES OF THE VARIOUS VINES,

Ascertained since the respective descriptions were printed.

Black muscat of Jerusalem, is Black Frontignac.
—— *Gibraltar*, is Red Hamburgh.
—— *Burgundy*, of English collections, is Black Cluster.
—— *Lisbon*, } of the English collections, } are Black Spanish.
—— *Portugal*, }
—— *Valentia*, }
—— *Prince*, }
Lombardy, of some, according to Miller, }
Black Muscadel, } are Augibert noir.
Mogul grape, }
Chasselas violet, of the French, is Black Muscadine.
Petit Chasselas, ditto is Cioutat.
Early white grape of Teneriffe, is White Muscadine.
Black Cluster, or Munier, of Miller, } are Meunier.
Vitis lanata, C. Steph. Prædium Rusticum, }
Green Chee, is Greek grape.
—— *melting*, is Fendant vert.
Imperial Tokay, is Gray Tokay.
Le Cour, or Frankindall, of Miller, is White Musk Chasselas.
Malmsey Muscadine, } of English collections, are White Chasselas.
Malvoisie Musqué, }
Muscat rouge de Frontignan, is Red Frontignac.
——— *noir de Frontignan*, } are Black Frontignac.
Purple Constantia, }
Red Muscadine, of the English, is Red Chasselas.
Red Rhenish, ditto, is Flame Tokay.
Rose grape, of the Americans, is Red Bland.
Stillward's sweet water, is White sweet water.
Vitis taurina, of Bartram, is Scuppernong and the varieties of the American Muscadine.
Warner grape, is Black Hamburgh.
White Lombardy, is White grape of Alcobaca.
White Raisin, } are White Hamburgh.
Nice, }

ERRATA.

PAGE.	LINE.			
30	21	*Chap. V.*	should read	Chap. VI.
64	21	*Vougost*,	ditto	Vougeot.
66	38	and in several other places,	*Duhammel*	should read Duhamel.
77	22	*Pr. Cat. No.* 7,	should read,	Pr. Cat. No. 76.
87	4	*Mascadel*,	ditto	Muscadel.
109	24	*hamburgh*,	ditto	Hamburgh.
160	19	*Auveras*,	ditto	Auvernas.
180	15	*Georgia*,	ditto	Carolina.
182	20 & 22	*Bauckman*,	ditto	Bachman.
226	26	*The Sugar Cane*,	ditto	The produce of the Sugar Cane.

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ABBREVIATIONS OF REFERENCES.

Pr. Cat.—Prince's Catalogue, 25th edition. In all subsequent editions the leading titles in this work will be adopted.
Clayt.—Clayton Flora Virginica.
Donn. Cat.—Donn Hortus Cantabrigiensis.
Duh.—Duhamel Dumonceau, Traité des Arbres fruitiers, nouvelle edition, 1825.
Garid.—Garidel.
Gouffé.—M. Gouffé de la Cour.
Hooker Pom. Lond.—Hooker Pomona Londinensis.
Linn.—Linnæus Systema vegetabilium.
Langley Pom.—Langley's Pomona.
Muhl.—Muhlenburg Catalogue.
Pluck. alm.—Pluckenett Almagestum Botanicum.
Trans. Lond. Hort. Soc.—Transactions of the London Horticulral Society.

PRINCE'S TREATISE ON THE VINE.

The second part of this work is now in preparation for the press, and will be published as soon as a sufficient number of subscribers is obtained. The subject matter which it will embrace is

THE PARTICULAR HISTORY OF THE VINE;

Comprising a Topographical Account of all the known Vineyards throughout the World, and including those of the United States; with the modes of culture, and the varieties of grapes peculiar to each: whence correct conclusions may be drawn, suited to all the various climates and soils of this country. To this will be added, an ample detail of the various modes of making Wines, with every particular necessary to render any one a complete Vigneron.

This work will comprise all the important information contained in the new edition of Duhamel, published in 1825; also that contained in the *Nouveau Cours Complet d'Agriculture*, edited by Members of the Royal Institute of France; together with such additional information as is found in the works of Rozier, Chaptal, Julien, McCulloch, Forsyth, Speechly, Berneaud, and other authors of celebrity. It will form an octavo volume of about 300 pages, and the price will be $1.50. A limited number of copies will be published, and those who remit the amount of subscription in advance will have the preference.

In addition to the other matter contained in this volume, information will be quoted from the writings of most of the following gentlemen, from a majority of whom letters have been received on the subject, and in relation to the others named, reference will be made to their vineyards already established, the success of which will be detailed, as well as the varieties cultivated in each.

Mrs. Mary Griffith.
—— J. M. H. Taylor.
Prof. Bosc, late Administrator of the Royal Garden of the Luxembourg.
Chev. Soulange Bodin, President of the Linnæan and Horticultural Societies of Paris.
Robert Bolling, Junr. Esq. whose compiled "Sketch of Vine culture," has been politely presented to the author.
Hon. Jonathan Hunnewell.
Gen. Thomas McCall, who has presented me with a detailed manuscript of his experiments and success in making wines, and also with some specimens of the produce.
Nicholas Herbemont, Esq., from whose vineyard I have also received specimens of some choice wines.
Dr. J. C. S. Monkur, Cor. Sec. of the Maryland Society for promoting the Vine culture.
Gen. Dearborn, President of Mass. Horticultural Society.
Dr. D. N. Norton.
Thomas S. Pleasants, Esq.
Robert Manning, Esq.
Jacob B. Garber, Esq.
Christian Bachman, Esq.
Thomas Eichelberger Esq.
Martin Crull, Esq.
Charles Nes, Esq.
Christian I. Hutter, Esq.
Col. George Gibbs.
Edward Stabler, Jun. Esq., from whose vineyard some specimens of excellent wine have been received.
Robert W. Withers, Esq.
Abraham Morrison, Esq.
J. Le Ray de Chaumont, Esq.
William Kenrick, Esq.
James J. Beatty, Esq.
Messrs. Beatty & Looser.
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Dr. Adrian Vandeveer.
Nathan Bridge, Esq.
Capt. Fay.
J. O'Fallon, Esq.
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George Small, Esq.
Richard Hill Morris, Esq.
Col. Clandinen.
Joseph W. Torrey, Esq. of Michigan.
W. S. Gibbes, Esq.
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M. Amoureux, Esq.
Joshua Lindley, Esq.
N. Chapy, Esq., of Cuba.
Robert B. Currey, Esq.
George Wilson, Esq.
Dr. Spengler.
Messrs. Groll & Shelby.
——— Jessup & Co.

Mr. Metz.
— Gish.
— Miller.
— Becker.
— Barnetz.
— Upp.
— Hinkel.
— Sulsbach.
— Forembach.
— Wildie.
— Francis Linck.
And a number of others.

ALSO NOW IN PRESS,

"THE POMOLOGICAL MANUAL;"

Comprising descriptions in detail of the various Garden Fruits, viz. Apples, Pears, Peaches, Plums, Cherries, Apricots, Nectarines, Almonds, Walnuts, Chesnuts, Mulberries, Quinces, Filberts, Gooseberries, Raspberries, Strawberries, &c. &c. The number of varieties therein described will be very great, and will embrace all those comprised in the new edition of Duhamel, a work for which the first cost at Paris is over $400; and also, the *most important* of those contained in the Pomological Magazine and other works of the highest note,—the object being to concentrate at a cheap rate all the pomological information necessary and requisite towards making a judicious selection from the great variety of Fruits, of such kinds as are best calculated to suit the wishes and purposes of cultivators.

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BY WM. PRINCE.

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No. 4. American Indigenous Trees, Shrubs, and Plants, pp. 47.

These Catalogues can be transmitted by mail, at a postage of 1½ to 2½ cents per sheet, according to the distance.

The following information may be acceptable.

The five principal Horticultural and Agricultural papers published in our country are the following:

American Farmer, published weekly, edited by Gideon B. Smith, Esq. Baltimore. A change has recently taken place in the editorial department of this paper, and Gideon B. Smith, Esq. is at the head of this very useful and widely circulating periodical. Mr. S. being well known as a writer of fine talents and great application, there cannot fail to be a manifest improvement in this publication, as the numerous avocations of the former editor did not permit him to devote an equal degree of attention thereto. Mr. Smith has particularly distinguished himself by his very intelligent and scientific communications in relation to the *Silk culture*, and various other subjects, and has thereby connected himself with the great interests and improvements of our country. It may therefore be justly said, that he assumes his present station with an enviable title to public respect and patronage. We understand with satisfaction that he proposes to establish at Baltimore, an Agricultural Repository of the most extensive kind.

New-England Farmer, published weekly, edited by Thomas G. Fessenden, Esq. seconded by J. B. Russell, Esq. the proprietor, Boston; and supported by the writings of many of the first agriculturists and horticulturists of our country, among which are some judicious writers, who are investigating the characters of our *native* fruits.

New-York Farmer, published monthly, edited by S. Fleet, Esq. New-York.

Southern Agriculturist, do. monthly, edited by J. D. Legare, Esq. Charleston.

Western Tiller, edited by I. P. Foote, Esq. Cincinnati.

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Adjoining the above establishment, is the very large Repository for Agricultural implements of every description, established and conducted by J. R. Newell, Esq. and which, from the numerous specimens of valuable articles therein concentrated, presents a similarity to the Patent Office at Washington.